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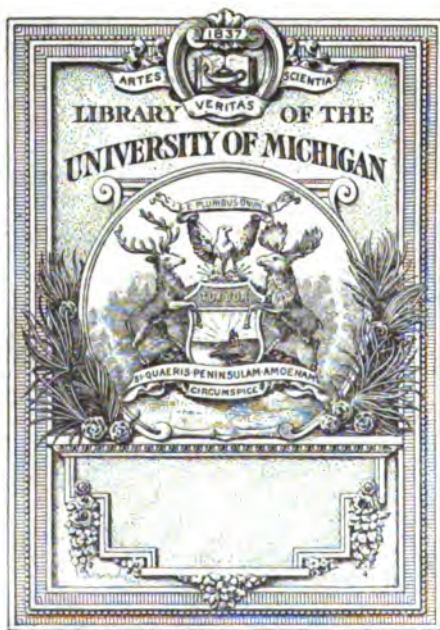
COMPLIMENTS OF

Indiana State Board of Agriculture.

ALEX. HERON, Sec'y.

INDIANAPOLIS, IND.

EXCHANGES ACCEPTABLE.



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Henry C. Meredith

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THIRTY-SECOND ANNUAL REPORT

OF THE

INDIANA

State Board of Agriculture.

VOLUME XXIV. 1882.

INCLUDING THE PROCEEDINGS OF THE ANNUAL MEETING, 1883,
AND JANUARY MEETINGS OF THE SWINE BREEDERS
AND WOOL GROWERS, 1883.

TO THE GOVERNOR.

INDIANAPOLIS.

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING.

1883.



INDIANA STATE BOARD OF AGRICULTURE,
INDIANAPOLIS, February 1, 1883. }

To His Excellency,

ALBERT G. PORTER,

Governor of Indiana :

SIR—In compliance with the act of the General Assembly, Approved February 1st, 1852, we have the honor to submit herewith the annual report of the Indiana State Board of Agriculture for the year ending December 31st, 1882, together with such matter as is deemed interesting and useful.

Very respectfully,

L. B. CUSTER, President.

ALEX. HERON, Secretary.

EXECUTIVE DEPARTMENT, }
INDIANAPOLIS, March 28, 1883. }

Received February 27, 1883, examined by the Governor, and transmitted to the Secretary of State, to be filed and preserved in his office, and printed as may be directed by the Commissioners of Public Printing.

FRANK H. BLACKLEDGE,

Private Secretary.

Filed in this office March 28, 1883.

W. R. MYERS,

Secretary of State.

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MEMBERS OF STATE BOARD OF AGRICULTURE, 1882.

(Elected by the Delegates from Agricultural Societies.)

-
- 1st District—ROBERT MITCHELL, Princeton, Gibson county.
2d District—SAMUEL HARGROVE, Union, Pike county.
3d District—B. H. HANCOCK, Fredericksburg, Washington county.
4th District—W. B. SEWARD, Bloomington, Monroe county.
5th District—T. W. W. SUNMAN, Spades, Ripley county.
6th District—S. R. QUICK, Columbus, Bartholomew county.
7th District—S. W. DUNGAN, Franklin, Johnson county.
8th District—JOSEPH GILBERT, Terre Haute, Vigo county.
9th District—W. H. RAGAN, Clayton, Hendricks county.
10th District—H. C. MEREDITH, Cambridge City, Wayne county.
11th District—JOHN P. BARNES, Anderson, Madison county.
12th District—J. K. O'NEAL, Lafayette, Tippecanoe county.
13th District—T. M. KIRKPATRICK, Kokomo, Howard county.
14th District—L. B. CUSTER, Logansport, Cass county.
15th District—W. A. BANKS, Door Village, Laporte county.
16th District—R. M. LOCKHART, Waterloo, DeKalb county.

OFFICERS OF THE INDIANA STATE BOARD.

(Elected by the Board of Agriculture.)

OFFICERS FOR 1882.

*H. C. MEREDITH	President.
L. B. CUSTER	Vice President.
ALEXANDER HERON	Secretary.
J. A. WILDMAN	Treasurer.
FIELDING BEELER	General Superintendent.

EXECUTIVE COMMITTEE.

ROBERT MITCHELL,
J. K. O'NEAL,

W. B. SEWARD,
J. P. BARNES.

* President Meredith died July 5th, and the unexpired term was filled by the Vice President.

BOARD OF AGRICULTURE.

A TABLE showing the Officers, Place and Receipts of each Fair held by the State Board of Agriculture.

Year.	PRESIDENT.	SECRETARY.	TREASURER.	GENERAL SUPERINTENDENT.	Place of Fair.	Premiums Paid.	Receipts of Fair.
1852.	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	W. T. Dennis	Indianapolis	.....	\$1,651 55
1853.	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	J. J. Bincham	Lafayette	.....	6,751 55
1854.	Gov. Joseph A. Wright	Wm. T. Dennis	Royal Mayhew	W. T. Dennis	Madison	.....	7,430 77
1855.	Gen. Joseph Orr	John B. Dillon	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	\$3,753 00	10,823 75
1856.	Dr. A. C. Stephenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,225 00	14,373 34
1857.	Dr. A. C. Stephenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,127 00	14,068 75
1858.	Dr. A. C. Stephenson	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr.	Indianapolis	.....	11,500 00
1859.	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	New Albany	6,193 00	8,599 50
1860.	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	Indianapolis	3,827 00	11,902 00
1861.	D. P. Holloway	Wm. T. Dennis	H. A. Fletcher	.....	No Fair	.....	.....
1862.	James D. Williams	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	3,994 00	4,124 06
1863.	A. D. Hamrick	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	.....	9,553 82
1864.	Stearns Fisher	W. H. Loomis	Francis King	W. H. Loomis	Indianapolis	4,121 00	10,785 50
1865.	Stearns Fisher	W. H. Loomis	Francis King	J. A. Grosvenor	Fort Wayne	4,078 00	11,497 35
1866.	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Indianapolis	.....	17,179 36
1867.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Terre Haute	6,331 00	17,148 05
1868.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,367 00	15,769 00
1869.	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,571 00	29,342 65
1870.	J. D. Williams	Joseph Foole	Carlos Dickson	J. S. Benson	Indianapolis	7,911 00	30,342 65
1871.	J. D. Williams	Joseph Foole	Carlos Dickson	Jacob Mutt	Indianapolis	5,534 00	20,549 90
1872.	John Sutherland	Alex. Heron	Carlos Dickson	H. W. Caldwell	Indianapolis	9,619 20	23,494 35
1873.	John Sutherland	Alex. Heron	Carlos Dickson	H. W. Caldwell	Indianapolis	8,984 75	42,309 10
1874.	William C. Allen	Alex. Heron	Carlos Dickson	E. J. Howland	Indianapolis	10,754 00	45,330 48
1875.	William C. Allen	Alex. Heron	Carlos Dickson	E. J. Howland	Indianapolis	12,068 20	43,214 99
1876.	Hezekiah Caldwell	Alex. Heron	Carlos Dickson	J. W. Furnas	Indianapolis	8,179 30	6,342 70
1877.	Jacob Mutt	Alex. Heron	Carlos Dickson	J. W. Furnas	Indianapolis	6,337 95	14,511 00
1878.	W. R. Seward	Alex. Heron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,067 00	15,991 33
1879.	Robert Mitchell	Alex. Heron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,472 50	22,919 50
1880.	W. H. Ragan	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	6,553 00	18,809 05
1881.	R. M. Lockhart	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	6,855 50	17,874 00
1882.	H. C. Meredith	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	8,068 00	25,631 10
1883.	Robert Mitchell	Alex. Heron	J. A. Wildman	Fielding Beeler	Indianapolis	.....	.....

A. C. Jameson filled the office of Treasurer for 1873, to the 27th of August, 1873, when he resigned, and Carlos Dickson was appointed to fill the unexpired term. H. C. Meredith died July 5th, and L. B. Gustaf, Vice President, came in as President for the unexpired term.

NOTE.—In consequence of the loss of papers, incident to the military occupancy of the rooms of the State Board of Agriculture, during the late war, and incomplete records preserved, the amount of premiums awarded at the several State Fairs is necessarily incomplete.

STATE INDUSTRIAL ASSOCIATIONS.

OFFICERS FOR THE YEAR 1883.

HEADQUARTERS IN THE AGRICULTURAL ROOMS, CORNER OF TENNESSEE AND MARKET STREETS.

Indiana State Board of Agriculture.—President, Hon. Robert Mitchell, Gibson county; Secretary, Alex. Heron, Indianapolis, Marion county. Organized May, 1851.

Indiana Horticultural Society.—President, Sylvester Johnson, Irvington, Marion county; Secretary, W. H. Ragan, Clayton, Hendricks county. Organized 1842.

State Association of Short Horn Breeders.—President, Hon. E. S. Frazee, Orange, Rush county; Secretary, J. W. Robe, Greencastle, Putnam county. Organized May, 1872.

Indiana Jersey Cattle Breeders' Association.—President, George Jackson, Beech Grove, Marion county; Secretary, T. A. Lloyd, Indianapolis. Organized January, 1883.

Indiana Dairymen's Association.—President, J. E. Thompson, Waterloo, DeKalb county; Secretary, Sylvester Johnson, Irvington, Marion county. Organized September, 1876.

Indiana Swine Breeders' Association.—President, Richard Jones, Columbus, Bartholomew county; Secretary, W. A. Macy, Lewisville, Henry county. Organized January, 1877.

Indiana Wool Growers' Association.—President, Fielding Beeler, Indianapolis, Marion county; Secretary, J. W. Robe, Greencastle, Putnam county. Organized October, 1876.

Indiana Poultry Breeders' Association.—President, H. C. G. Bals, Indianapolis, Marion county; Secretary, D. H. Jenkins, Indianapolis, Marion county. Organized January, 1878.

Indiana Bee Keepers' Association.—President, I. N. Cotton, Traders' Point, Marion county; Secretary, F. L. Daugherty, Indianapolis. Organized October, 1879.

Indiana Cane Growers' Association.—President, Dr. A. Furnas, Danville, Hendricks county; Secretary, Prof. H. W. Wiley, Lafayette. Organized December, 1882.

Indiana Tile Makers' Association.—President, Robert Thomas, Indianapolis; Secretary, J. J. W. Billingsley, Marion county. Organized November, 1876.

Indiana Women's State Industrial Association.—President, Mrs. Dr. M. E. Haggart, Indianapolis, Marion county; Secretary, Mrs. F. M. Adkinson, Indianapolis, Marion county. Organized September, 1878.

METEOROLOGICAL TABLES.

MONTHLY MEAN BAROMETER, THERMOMETER, ETC.

TABLE showing *Monthly Mean Barometer, Thermometer, Relative Humidity; Maximum and Minimum Temperatures; Prevailing Direction of Wind; number of Clear, Fair and Cloudy Days; average amount of Cloudiness; number of Days on which 0.01 Inches or more of Rain or Snow fell; total amount of Precipitation and number of days on which the Temperature fell below the Freezing Point at Indianapolis, Ind., for each Month of the Year 1882, as recorded at the United States Signal Office:*

1882. MONTH.	Mean Barometer, Inches.	Mean Thermometer, Degrees.	Mean Relative Hu- midity. Per Cent.	Maximum Tempera- ture. Degrees.	Minimum Tempera- ture. Degrees.	Prevailing Direction of Wind.	No. of Clear Days.	No. of Fair Days.	No. of Cloudy Days.	Average Cloudiness During Month. Scale 0.10.	No. of days on which 0.01 inch or more of Rain or Snow fell. Inches.	Total amount of Pre- cipitation. Inches.	No. of Days on which the Temperature fell below freezing.
January	30.149	31.6	76.7	61.5	7	NW.	5	10	16	6.9	14	3.74	23
February	30.091	42.2	71.9	65	15	SE.	11	5	12	5.5	11	7.28	8
March	30.078	44.8	67.0	70.5	24	NW.	5	14	12	6.0	14	6.11	11
April	30.017	53.2	63.4	80	24	N. SE.	8	13	9	5.3	10	3.68	4
May	29.945	58.5	66.0	80.5	37	SE.	8	11	12	5.6	20	7.65	0
June	29.897	71.6	69.4	94	45	SW.	6	16	8	5.6	16	9.35	0
July	30.002	72.6	67.7	89	53	S.	15	13	3	3.9	9	3.43	0
August	29.971	73.0	77.3	90	52	SW.	9	12	10	4.9	13	4.51	0
September	30.067	65.5	74.8	85	42	N.	15	12	3	3.3	4	0.72	0
October	30.024	58.8	73.6	79	35.5	SE.	12	11	8	4.3	8	2.18	0
November	30.187	43.3	71.4	72	22	NE.	7	10	13	5.8	11	2.50	10
December	30.142	30.4	74.2	57	-10	NW.	7	10	14	6.1	11	2.53	22
Annual Means and totals. }	30.045	53.8	71.1	77	28.9	N. SE. NW.	108	137	120	5.3	141	53.68	78

DAILY AND MONTHLY MEAN BAROMETER.

Table showing Daily and Monthly Mean Barometer at Indianapolis, Ind., for each day and month of the year 1882, as recorded at the United States Signal Office.

BAROMETER CORRECTED FOR ELEVATION, TEMPERATURE AND INSTRUMENTAL ERROR.

DATE.	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1 . . .	30.101	30.055	29.900	30.099	30.103	29.844	29.849	29.953	29.987	30.188	30.191	30.069
2 . . .	30.149	30.068	30.092	30.112	30.277	29.783	30.006	29.860	30.007	30.169	30.445	30.207
3 . . .	30.310	30.101	30.194	30.140	30.085	29.694	29.838	29.801	30.071	30.180	30.331	30.273
4 . . .	30.311	29.841	29.987	30.099	29.769	29.865	29.928	29.837	30.146	30.193	30.256	29.624
5 . . .	30.317	29.965	29.879	30.058	29.721	30.056	30.022	29.870	30.196	30.218	30.075	29.933
6 . . .	30.048	30.069	30.180	29.952	29.902	30.067	30.028	30.008	30.101	31.167	30.006	30.241
7 . . .	29.974	30.040	30.513	30.046	29.985	29.971	29.805	29.962	29.976	30.029	30.210	30.677
8 . . .	29.932	30.079	30.261	30.000	29.944	29.841	29.915	29.780	29.975	29.817	30.177	30.531
9 . . .	30.279	29.941	29.686	29.774	29.847	29.798	29.963	29.922	30.030	29.980	30.013	30.013
10 . . .	30.008	30.307	30.267	29.955	29.643	29.789	29.869	30.064	29.940	29.917	30.054	29.943
11 . . .	30.309	30.268	30.217	30.131	29.619	29.966	29.918	30.071	29.958	29.921	29.998	30.174
12 . . .	30.220	30.126	29.912	30.107	29.636	29.962	29.847	30.019	30.050	29.863	30.015	29.997
13 . . .	29.929	30.153	30.139	30.064	29.720	29.959	29.952	29.969	29.865	29.926	30.145	29.974
14 . . .	30.079	30.198	30.181	30.142	29.815	29.854	30.117	29.940	29.948	30.138	30.016	30.035
15 . . .	29.846	30.088	29.972	30.166	29.991	29.851	30.112	29.911	30.073	30.083	30.190	30.206
16 . . .	30.080	29.951	30.251	30.251	30.183	29.798	30.030	29.911	30.066	29.913	30.208	30.185
17 . . .	30.327	30.384	30.042	30.215	30.250	29.602	29.995	30.031	29.964	29.989	30.261	29.981
18 . . .	30.110	30.265	29.850	29.574	30.248	29.625	29.926	30.069	29.945	30.064	30.277	30.226
19 . . .	30.253	30.107	30.119	29.542	30.092	29.941	29.988	30.165	29.937	30.159	30.266	30.060
20 . . .	30.069	29.716	29.747	29.789	29.960	30.087	30.092	30.238	30.080	30.196	30.105	29.629
21 . . .	30.031	29.795	29.903	29.930	29.991	30.056	30.149	30.182	30.112	30.096	30.051	29.859
22 . . .	30.518	30.146	30.355	29.747	30.114	30.062	30.213	30.085	30.111	29.990	30.048	29.922
23 . . .	30.543	30.329	30.251	29.850	30.223	30.030	30.179	30.002	30.182	30.015	30.032	29.683
24 . . .	30.371	30.487	30.538	30.149	30.109	29.939	30.067	29.929	30.245	30.061	30.395	30.203
25 . . .	29.967	30.364	30.137	30.076	30.056	29.910	30.066	29.894	30.276	29.863	30.335	30.192
26 . . .	29.861	30.198	29.768	29.871	29.918	30.014	30.085	29.871	30.197	30.046	30.064	30.309
27 . . .	30.200	29.986	29.674	30.071	29.737	30.003	30.025	29.878	30.018	29.989	30.251	30.356
28 . . .	30.101	29.487	29.992	30.039	29.828	29.901	29.973	29.891	29.965	29.883	30.049	30.342
29 . . .	30.458	...	29.507	30.128	30.022	29.887	30.043	29.952	30.037	29.947	30.223	30.282
30 . . .	30.096	...	30.354	30.146	29.891	29.743	30.018	29.967	30.128	29.823	30.302	30.314
31 . . .	29.775	...	30.331	...	29.646	...	29.857	29.984	...	29.606	...	30.345

MONTHLY MEAN BAROMETER.

	30.149	30.091	30.078	30.017	29.945	29.897	30.002	29.971	30.057	30.024	30.167	30.142
--	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

Examined at office of Chief Signal Officer on April 13, 1883, and found to be correct.

DAILY AND MONTHLY MEAN TEMPERATURE.

TABLE showing Daily and Monthly Mean Temperature at Indianapolis, Ind., for each day and month of the year 1882, as recorded at the United States Signal Office.

DATE.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1 . . .	23.2	34.7	53.7	62.2	50.5	56.7	76.7	78.7	72.5	65.3	52.0	42.0
2 . . .	25.2	38.2	58.8	68.5	46.3	64.8	68.2	74.7	69.0	65.7	49.5	32.3
3 . . .	25.8	37.3	51.2	67.8	53.5	57.2	68.3	75.0	67.8	65.3	45.7	29.3
4 . . .	22.3	36.5	51.3	71.8	63.3	52.8	64.0	74.7	66.8	65.7	45.3	42.0
5 . . .	25.5	41.0	55.0	71.2	57.2	60.5	64.5	79.3	66.5	68.7	50.3	34.5
6 . . .	35.8	51.3	40.0	68.7	48.7	67.2	69.5	81.2	67.8	69.0	54.8	27.0
7 . . .	41.5	49.8	34.3	70.5	63.7	69.3	70.5	77.5	71.3	69.3	50.3	-1.7
8 . . .	45.0	40.3	40.3	64.2	71.8	72.5	72.3	70.3	69.7	69.0	54.5	5.3
9 . . .	35.7	40.7	48.8	56.2	67.8	75.7	78.8	63.7	65.0	61.7	59.3	29.7
10 . . .	35.7	42.8	34.3	34.2	67.0	72.3	76.7	63.5	64.7	59.7	61.3	31.3
11 . . .	36.3	54.8	39.7	31.5	62.3	60.0	77.3	66.0	63.5	56.7	67.0	27.3
12 . . .	34.7	58.0	41.0	37.3	51.5	67.2	71.7	70.2	62.8	61.3	47.7	39.0
13 . . .	38.2	45.7	29.2	40.0	47.3	74.5	67.3	74.0	72.0	61.7	32.0	31.7
14 . . .	31.5	42.7	38.2	41.8	52.2	76.7	65.2	77.3	75.2	56.3	37.7	25.7
15 . . .	43.5	50.3	47.7	44.3	50.0	78.3	73.2	71.3	69.5	56.7	42.0	13.7
16 . . .	26.8	54.8	40.7	47.8	53.3	76.0	76.5	73.3	70.3	63.0	49.0	13.3
17 . . .	11.7	40.0	43.8	51.8	59.0	75.2	73.0	68.0	72.7	55.8	45.3	21.0
18 . . .	24.8	40.5	57.8	60.5	62.2	75.3	73.3	71.3	77.0	52.3	40.3	21.7
19 . . .	28.5	48.7	52.7	55.2	65.5	60.2	73.0	72.2	75.7	49.0	41.3	36.7
20 . . .	36.8	44.8	52.8	49.2	67.8	63.8	70.3	74.7	64.3	46.0	38.3	45.7
21 . . .	35.8	27.3	36.3	51.7	60.0	71.3	69.7	74.8	57.8	52.0	38.3	44.0
22 . . .	21.5	24.7	30.3	42.0	51.0	81.3	70.5	76.2	55.7	52.7	41.0	37.7
23 . . .	20.8	20.5	44.8	44.7	52.7	82.3	73.7	75.0	56.0	49.0	37.3	36.0
24 . . .	29.0	27.7	32.3	48.0	53.0	84.5	74.7	75.3	56.3	49.0	30.3	35.3
25 . . .	43.5	36.0	44.0	54.2	55.8	84.0	77.3	75.0	56.3	59.5	35.7	40.3
26 . . .	49.7	43.8	57.0	52.7	65.0	77.0	78.0	71.0	54.5	55.3	32.7	37.0
27 . . .	40.7	50.7	47.5	54.7	68.2	80.7	81.3	71.0	54.0	54.0	29.0	35.7
28 . . .	36.5	57.2	41.7	57.5	58.5	79.8	74.7	70.5	61.2	59.3	31.3	34.3
29 . . .	16.7	...	54.0	49.3	60.3	75.0	70.7	73.0	65.0	50.7	29.3	35.7
30 . . .	26.7	...	42.7	47.7	65.0	75.3	74.2	72.7	62.7	60.3	31.7	33.7
31 . . .	28.8	...	47.2	...	60.7	...	76.3	72.7	...	61.8	...	28.3

MONTHLY MEAN TEMPERATURE—(° FAHR.)

	31.6	42.2	44.8	53.2	58.5	71.6	72.6	73.0	65.5	58.8	43.3	30.4
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TABLE

Of Annual Means, etc., for the years 1872 to 1882, arranged for comparative purposes, and compiled from the Records at the U. S. Signal Office, at Indianapolis, Indiana.

YEAR.	Annual Mean Barometer—Inches.	Annual Mean Temperature—Degrees.	Annual Mean Relative Humidity—Per Cent.	Maximum Temperature during the year—Degrees.	Minimum Temperature during the year—Degrees.	Annual Prevailing Direction of Wind.	Number of Clear Days.	Number of Fair Days.	Number of Cloudy Days.	Average amount of Cloudiness—Scale, 0.10.	Number of days on which 0.01 inch or more of Precipitation.	Total amount of Precipitation.	Greatest Rainfall in 24 consecutive hours—Inches.	Number of days on which the Maximum Temperature was below freezing.	Number of days on which the Minimum Temperature was below freezing.	Number of days on which the Temperature was above 90°.
1872.	30.044	50.8	67.5	96.0	-11.0	SW.	85	142	139	5.0	122	84.07	3.71	49	120	17
1873.	30.004	52.0	69.2	95.0	-13.0	SW.	97	141	127	5.0	145	52.32	3.73	38	99	9
1874.	30.087	55.0	63.0	97.0	-2.0	NW.	97	150	118	5.0	120	43.60	2.61	17	83	27
1875.	30.005	50.5	66.1	92.0	-18.5	W.	81	138	146	5.0	155	54.58	2.86	44	107	5
1876.	29.997	53.2	68.1	93.0	-15.0	W.	83	126	157	6.0	155	57.53	2.70	30	101	9
1877.	30.008	54.0	67.2	90.0	-11.0	SW.	98	141	126	5.0	139	39.08	2.67	20	84	0
1878.	29.946	55.4	64.6	96.0	-12.0	SE.	84	159	122	6.0	148	38.62	2.08	17	68	13
1879.	30.036	53.9	64.4	96.0	-22.0	S.	94	135	136	5.0	122	42.88	2.53	27	98	12
1880.	30.030	54.4	65.4	91.0	-13.0	W.	106	145	115	5.0	123	50.99	2.00	26	91	9
1881.	30.024	54.9	67.4	101.0	-6.0	SW.	100	140	125	5.0	112	48.74	4.30	28	96	31
1882.	30.045	53.8	71.1	94.0	-10.0	NW.	107	141	117	5.3	141	53.68	3.02	19	78	4

ANNUAL REPORT, 1882.

The favorable reception of the last Annual Report from this office has been a stimulus to keep this up to the standard of excellence, as a book of reference for the past year, in all matters concerning agriculture, as indicated by the table of contents in the front part, and complete index in the latter part of the book, and for this reason we will avoid a general review of the contents, any more than to call attention to the principal features therein.

The business connected with the Board of Agriculture, the past year, has been of the most satisfactory nature, with every indication of continued prosperity, as evidenced by the expressions of good will, and increased interest manifested by all concerned.

The season has been a remarkable one. The unusually mild winter was followed by a cool, wet spring, keeping vegetation backward, and late planting of corn, causing great apprehension as to consequences. (The tables herein, as continued for a series of years will show the record of weather for each day, with full details in a comparative form.) The growing season proved to be very favorable, and extended later than usual, with the usual August weather in September, thus giving the corn crop a good chance to mature and make a full average.

The cool, late spring was favorable to the wheat crop, the yield of which was one of the largest ever produced in the State (as shown in its order with other statistics), and places Indiana in the front rank as a wheat producing State, as proven by the following tables. The report from the U. S.

Department, for 1882, places this State second on the list as follows:

Illinois, 52,302,900 bushels; Indiana, 45,461,800 bushels; Ohio, 45,453,600.

While this statement is true in the aggregate, it conveys a wrong idea as to the facts in the case, as Illinois represents one-third more territory than Indiana in the estimate of crops. Therefore, we compile the following table to show the standing of each of the above States according to area and amount:

Table Computed from the Report of U. S. Department at Washington, for 1882:

State.	Bus. of wheat.	Square miles.	Bus. of wheat to the square mile.
Indiana.....	45,461,800	35,910	1,265
Ohio.....	45,453,600	40,760	1,115
Illinois.....	52,302,900	56,000	933

The above figures represent the crop of 1882, and to show that our claim is not based on a single year or by any manipulation of figures, we add the following table, compiled from the United States census of 1880, which represents the crop of 1879:

Table Computed from the Compendium of the Tenth Census of the United States.

State.	Bushels wheat.	Square miles.	Bus. wheat to sq. mile.	Acres sown in wheat.	Bushels per acre.
Indiana.....	47,284,853	35,910	1,316	2,619,695	18.04
Ohio.....	46,014,869	40,760	1,128	2,556,184	18.00
Illinois.....	51,110,502	56,000	912	3,218,542	15.87

Thus it will be seen that not only is this State first in the production of wheat according to area of territory, but stands number one in the yield per acre, followed closely by Ohio and leaving Illinois third on the list.

We call special attention to the description of Indiana, and compilation of statistics, beginning on page 336 of this report, by which is shown that this State is a good place to "come to and stay." In the report of 1879 we gave a list of over 1,500 pioneers who had met together that year in convention, their

ages ranging from seventy to one hundred years, none having resided in Indiana less than forty years. What better evidence of a healthful climate could be presented, or what other section of country can equal such a showing. Health is certainly one of the first considerations and importance in selecting a location, especially where nothing is wanting to insure prosperity combined with industry and intelligence.

In the report of 1876 we give a description of each county in the State without exception as to the locality, soil, timber and general features. We have not considered it necessary to repeat the description each year. The annual reports herein, from each agricultural society in the State, give a fair statement of the condition of agriculture and the progress of improvements, from which we compile some useful information.

The improvements in roads at present is wonderful. The drain tile business and interest manifested therein is simply astonishing, almost marvelous, and gives evidence of prosperity.

According to estimates made from the Report of the Bureau of Statistics for 1882, and the tenth census, it is shown that the annual total gross product of this State will amount to \$278,964,960, as follows:

Grain.....	\$101,750,322
Hay and Seeds.....	22,514,064
Tobacco, Flax, Hemp and Hops.....	1,189,605
Molasses, Cider Vinegar, Honey and Bees.....	1,769,823
Fruits and Berries.....	2,775,078
Roots and Garden products.....	7,383,959
Dairy products.....	43,814,509
Wool products.....	1,541,874
Poultry products.....	30,817,061
Live Stock increase.....	9,695,299
Fat Stock sold and home use.....	38,296,470
Coal product.....	2,522,291
Stone product.....	633,775
Timber product.....	14,260,830

Of the above, it is estimated that about 75 per cent. of the gross production is used in home consumption, including seed, clothing, etc., the balance goes to improvements, education, taxation, recreation and surplus.

In this estimate we have not included any of the manufacturing interests, which will show some interesting figures. (See page 356.)

The State Auditor's Report for 1882 gives the total taxable property valuation of the State at \$805,202,792, of which \$396,714,138 is on land and improvements, \$146,713,304 is in lots and improvements and \$261,775,350 is in personal property. The taxes levied amount to \$12,400,536. The above seems astounding, as the result of only sixty years, in changing this State from an almost unbroken wilderness to its present condition. We can scarcely realize the extent of its vast resources when we consider that not more than one-half of the State is in a cultivated condition; and compared with older countries, Indiana has the capacity of supporting a population of 17,000,000, or eight times more than at present.

It is gratifying to note the favorable comparison of this State with other States and countries in that which constitutes the material wealth and prosperity of its inhabitants. Her facilities for improvements and increasing productiveness are first-class. In location, lying between the great lakes on the north and the Ohio river on the south, and midway between the great oceans, in the direct line of travel from the wealthy commercial centers and manufacturing districts of the East, to the newly settled and rich agricultural and mining districts of the "Great West," having a climate and soil well adapted to the production of the most valuable grains, grasses, fruits and live stock, with more miles of railroad and telegraph in operation than any other division of the globe in proportion to the population, her future importance seems clearly foreshadowed.

It is with pleasure we refer to the proceedings of the State industrial associations, as reported herein. Organized to protect and foster their respective interests, they mark a new era in agricultural progress, and are the means of disseminating valuable information from practical sources. The associations meet regular in the lecture room of the Board of Agriculture, where every convenience is furnished by the board.

We also call attention to the proceedings of the annual delegate meeting, the subject matter and valuable essays which we have been able to secure, and trust that this report will meet with approval.

The future of Indiana, as pictured out in a recent article by Col. J. B. Maynard, of Indianapolis, is so very appropriate and prophetic that we, by permission, copy a portion:

"In the production of wheat, Indiana, considering area, is at the head of the list of wheat producing States, and in all matters pertaining to farming she occupies a position in the front rank; and that, too, at a time when not more than one-half the area available for farming is under cultivation, and when thousands of those who till the soil are oblivious of that knowledge which compels the earth to yield its most bounteous contributions to the wealth of the State. But a new era is dawning in agriculture. Farmers are beginning to properly estimate the dignity of their profession. Science offers its aid, and ignorance is yielding to its beneficent proposals. The future promises triumphs in agricultural pursuits in Indiana which in their grandeur will dwarf past and even present achievements to insignificant proportions. We are to have, in the near future, students of soils and seeds and manures. Where one blade of grass is now grown a dozen are to spring forth to tell of the triumphs of the educated farmer. Science and common sense are to go hand in hand. Agricultural fairs will grow in importance, and the farmer, equipped with such knowledge as nature approves, applauds and rewards, will stand up and stand forth as the representative man of the times. The bearded wheat and the tasseled corn will own his sway. Improved herds will herald his triumphs and Indiana will proclaim him her benefactor."

SECRETARY.

STATE BOARD MEETINGS, 1882.

• AGRICULTURAL ROOMS,
THURSDAY MORNING, January 6. }

ORGANIZATION OF THE NEW BOARD.

Board met. This being the first session of the Board proper, it was called to order by President Lockhart.

On call of the roll of members, the following answered to their names: Messrs. Mitchell, Hargrove, Hancock, Seward, Sunman, Quick, Dungan, Gilbert, Ragan, Meredith, Barns, O'Neal, Kirkpatrick, Custer, Banks and Lockhart, after which the President vacated his seat. Mr. Mitchell was called to the chair, and the Board proceeded to the election of officers for the ensuing year. The election resulted as follows:

President H. C. Meredith, of Wayne county.
Vice President L. B. Custer, of Cass county.
Secretary Alex. Heron, of Marion county.
Treasurer J. A. Wildman, of Marion county.
General Superintendent Fielding Beeler, of Marion county.

Executive Committee.

Robert Mitchell, of Gibson county.
J. K. O'Neal, of Tippecanoe county.
W. B. Seward, of Monroe county.
John P. Barns, of Madison county.

Messrs. Lockhart, Custer and O'Neal were appointed a committee to escort the newly elected President, Mr. Meredith, to

NOTE.—The condensed proceedings of the Board of Agriculture, as herewith presented, includes only such matter as may be useful for reference or of general interest.

the chair. Before taking his seat, Mr. Meredith, in a few appropriate remarks, thanked the Board for the honor conferred upon him, and requested the co-operation of members in the discharge of his duties.

Mr. Lockhart moved that delegates be now appointed to attend the Agricultural Convention at Washington, commencing January 10th, as requested by Dr. Loring, Commissioner of Agriculture. And, Dr. R. T. Brown, J. B. Conner, Chief Bureau Statistics, Mr. Mitchell, Dr. A. C. Stevenson, Mr. Lockhart, Mr. Haynes, Mr. Heron, Mr. Meredith, Mr. Mutz, Prest. E. E. White, and Prof. Ingersol, of Purdue University, were so appointed.

Secretary Heron presented a communication from John Farley of the Tri-State Fair of Toledo, Ohio, consisting of the State Fair of Indiana, Ohio and Michigan, requesting the appointment of delegates to attend the annual meeting at Detroit, Michigan, January 11, 1882, and Messrs. Lockhart and Quick of the Board were so appointed.

On motion of Mr. Seward, it was determined to hold the Fair for 1882, commencing Monday, September 25, 1882.

Mr. Ragan offered the following:

Resolved, That there is hereby appropriated from the Treasurer of this Board the sum of eight thousand (\$8,000) dollars, for the purpose of taking up and canceling a like amount of the bonded indebtedness of the Board, provided that such an arrangement can be made with the holders of the bonds.

Mr. Mitchell moved to amend by inserting \$5,000 instead of \$8,000, which was carried, and the resolution, as amended, was adopted.

On motion of Mr. Ragan, the Secretary and Treasurer were authorized to receive bids for the purchase of the vacant lots belonging to the Board.

On motion of Mr. Mitchell, the salaries of the Secretary, Treasurer and General Superintendent, were fixed the same as for 1881.

Treasurer Wildman presented his bond in the sum of \$40,000, which, on motion of Mr. Seward, was approved.

On motion of Mr. Seward, adjourned to meet February 21, 1882.

FEBRUARY MEETING OF THE BOARD.

FIRST DAY.

MORNING SESSION.

TUESDAY, February 21, 1882, 10:30 o'clock A. M.

Board met, President Meredith in the chair.

On call of the roll, Messrs. Mitchell, Hargrove, Seward, Quick, Dungan, Barns, Custer and Banks responded.

There being only nine members present, on motion of Mr. Seward, adjournment was had to 1:30 P. M.

AFTERNOON SESSION.

Board met, President Meredith in the chair.

On call of the roll, Messrs. Mitchell, Hargrove, Seward, Quick, Dungan, Gilbert, Ragan, Barns, Kirkpatrick, Custer and Banks responded.

The minutes of the last sessions of the January meeting were read, corrected and approved.

The President announced the Standing Committee as follows:

STANDING COMMITTEE.

On Finance—Mitchell, Seward and O'Neal.

On Rules and Regulations—Lockhart, Quick and Kirkpatrick.

On Fair Grounds—Ragan, Barns and Dungan.

On Premium List—O'Neal, Gilbert and Banks.

On Unfinished Business—Hancock, Sunman and Hargrove.

On Geology and Statistics—Mitchell, Seward, O'Neal and Barns.

Mr. Mitchell moved that the vote at the January meeting fixing the time of holding the State Fair of 1882 be reconsidered, which, after some discussion, was not agreed to.

The Secretary read a memoranda of matters for consideration of the Board, which, on motion of Mr. Mitchell, it was agreed should be taken up and acted upon separately, as follows:

A communication from T. E. Miller, Secretary of the American Hereford Cattle Breeders' Association, and addressed to Governor Porter, relating to the prevention, as a sanitary measure, of the introduction of cattle from districts infected by the disease known as pleuro-pneumonia.

On motion of Mr. Meredith the communication was returned to the Governor with the respectful recommendation of the State Board of Agriculture of Indiana, that he call the attention of the next Legislature to the subject, and ask that authority be conferred upon the Governor to exclude cattle being shipped into or through the State, and that stock coming from the regions of country infected with pleuro-pneumonia may not be permitted to locate within or pass the State lines.

A communication from the Illinois State Board of Agriculture, relating to the Annual Fat Stock Show, at Chicago, requesting the publication in the premium list of the schedule of premiums of the Fat Stock Show. The appointment of one expert judge of improved breeds of fat stock, and the appointment of delegates to the stock show was presented.

On motion of Mr. Meredith, it was agreed that these requests be complied with.

Three other communications, relating to premiums were referred to the Committee on Premium List.

The matter of protest, Quick *vs.* Wilson, was brought up. After some discussion, on motion of Mr. Seward, it was agreed to take the subject up at 8 o'clock P. M., on Thursday next, and the Secretary instructed to telegraph Mr. Wilson accordingly.

A communication from the City Council, relative to the use of Garfield Park as a fair ground, was taken up, which, on motion of Mr. Seward, was received and ordered to lie on the table for further consideration.

Mr. Seward moved that the appropriation for premiums for 1882 do not exceed that for 1881. Not carried.

On motion of Mr. Dungan, it was agreed that there be but one committeeman, an expert, on each class in the Sheep Department, instead of three, as heretofore.

Mr. Ragan moved that the Fair Grounds be sold.

An animated and lengthy discussion followed, and a unanimous "No" to the proposition as offered.

On motion of Mr. Ragan, \$5,000 was fixed as the minimum price at which the outlots belonging to the Board should be sold.

Adjourned until 9:30 o'clock to-morrow morning.

SECOND DAY.

MORNING SESSION.

WEDNESDAY, Feb. 22, 9:30 A. M.

Board met, President Meredith in the chair.

Members present, Messrs. Mitchell, Hargrove, Sunman, Quick, Dungan, Gilbert, Ragan, Barns, Kirkpatrick, Custer, Banks and Lockhart.

Minutes of yesterday's proceedings read and approved.

Mr. Lockhart moved that the President appoint a committee of five to confer with the Woman's State Fair Association, which was adopted; and Messrs. Lockhart, Mitchell, Gilbert, Custer and O'Neil were appointed the committee.

Special premiums of silver medals on Oxforddown, Merino and Cotswold sheep, were offered by T. W. W. Sunman and S. W. Dungan the sheep to be judged by the standard adopted by the Indiana Wool Growers' Association.

Which was accepted.

Mr. Mitchell moved that a committee of three be appointed by the President to award the medal offered for the best report by any County Agricultural Society.

Carried, and the President appointed Messrs. Mitchell, Seward and Kirkpatrick the Committee.

Adjourned until 1:30 o'clock, P. M.

AFTERNOON SESSION.

Board met, President Meredith in the chair, all the members present.

Mr. Mitchell from the special committee to award the silver medal offered for the best report from County Agricultural Society reported as follows:

Your committee appointed to examine the various County Agricultural Society reports entered for competition, beg leave to report that we have examined the same on file in the Secretary's office and award the premium to the Agricultural Society of Knox county.

President Meredith read an invitation from Governor and Mrs. Porter, to the members of the Board of Agriculture, to attend the reception at their residence, this evening at 8 o'clock, which, on motion, was accepted.

The matter of premiums of \$10, offered for best display and greatest variety of corn, in 1881, payment of which had been withheld because the Awarding Committee had changed the award from an individual display to a display by an association, contrary to the first rule in the Agricultural Department, was brought up. On investigation, it appeared that H. T. Adams, of Cass county, had made the best display and shown the greatest variety of corn grown by the exhibitor, and premium so awarded.

The matter of joint advertisement with the Fair Circuit, including Ohio State Fair, Toledo, Michigan State Fair, Northeastern Indiana, and Indiana State Fair, was brought up. Mr. Lockhart explained its nature.

On motion of Mr. Mitchell, the Secretary was authorized to contract for 300 of the joint posters of the circuit.

A communication from Sylvester Johnson, relating to the request of the State Dairyman's Association, to increase the premiums on dairy products, and limit them to Indiana, was referred to the committee on premium list.

The Board then resolved itself into committee of the whole on revision of the rules and regulations, Mr. Mitchell in the chair. After deliberation, the committee rose, President Mer-

edith resumed his seat and called to order. Mr. Mitchell, from committee of the whole, reported progress and asked leave to sit again, which was granted.

At 4:30 p. m. President Meredith called the Board to order, when it again resolved itself into committee of the whole, with Mr. O'Neal in the chair.

At 6:15 o'clock the committee rose, Vice President Custer resumed the chair. Mr. O'Neal, from committee of the whole, reported progress and asked leave to sit again, which was granted.

The Board then adjourned until 9 o'clock to-morrow morning.

THIRD DAY.

MORNING SESSION.

THURSDAY, Feb. 23, 1882, 9 A. M.

Board met, President Meredith in the chair; all the members present.

Minutes of yesterday's proceedings read, corrected and adopted.

On motion of Mr. Mitchell, the proposition of the Committee on Public Property of the Council of Indianapolis to lease to this Board "Garfield Park," whereon to hold the State Fair, was taken up.

Mr. Ragan offered the following, which was adopted:

WHEREAS, The Committee on Public Property of the City Council of Indianapolis has generously tendered the use of Garfield Park to this Board on easy terms, for fair ground purposes, in the event of a sale or otherwise abandonment of the present State Fair Grounds for fair purposes; and

WHEREAS, This generous offer can not for the present be accepted, as there is no immediate prospect of a change of location; but as the time may come in the near future when this Board would be glad to consider so liberal a proposition; therefore, be it

Resolved, That the thanks of this Board are hereby tendered the said Committee of Council on Public Property of Indianapolis for their generous proposition; also, that the Secretary is hereby authorized to present a copy of this resolution to said committee.

Mr. Lockhart offered the following:

Resolved, That a committee of three be appointed (of which the President shall be one) to effect a sale of the Indiana State Fair Grounds, if the same can be done for a sum not less than one hundred and twenty-five thousand (\$125,000) dollars, with the understanding that the grounds are to be retained by the Board for Fair purposes until the 20th day of October, 1882.

Mr. Ragan moved the adoption of the resolution, pending which Mr. Mitchell offered the following, which was adopted:

Resolved, That we believe that it is for the best interest of the State Board of Agriculture that the grounds now occupied by the Board known as the State Fair Grounds, be offered for sale at \$125,000; and should a sale be effected, the payments to be made to the Board on terms to be hereafter agreed upon, the Board reserving the use of the grounds until November 1, 1882; and that the Executive Committee be and is hereby instructed by the Board to accept bids and make sale as provided by this resolution.

Mr. Ragan, from the Committee on Fair Grounds, reported as follows:

We respectfully recommend that new stalls for horses be erected, beginning at the northeast corner of the grounds and running westward; that there be first eight (8) stalls with open front, six feet in width; next two double box stalls, and so on to the ditch near the northwest corner of the grounds. That cattle stalls be erected from the ditch to the northwest corner; and thence south, forming the boundary of the grounds on the west, to the southwest corner. These stalls shall also be built with open fronts, six of which shall be six feet in width and two double ones. We also recommend that the present cattle stalls and hog and sheep pens on the west of the ditch be removed, and that sheep and hog pens be erected in double sections, with spaces of twenty-five feet between each section, from the ditch to an avenue of uniform width, running parallel with the west line of the cattle stalls; that in case additional horse stalls are required, we would recommend that they be erected on the east side, extending southward as far as may be needed, from the south end of the present stalls. If additional cattle stalls be required, that they be built in blocks corresponding to the sheep and hog pens, taking the north end of the space west of the ditch. We would further recommend that these stalls and pens be covered with shingles.

Your committee would further recommend that the rooms in the main building, known as the State Board room, east of the front stairway, and the one west, occupied last Fair by Treasurer Wildman, be cut out and formed into alcoves. These will rent handsomely for lunch stands, and also afford much desired light from the south windows; also, that the walls inclosing the check room, under the south stairway, be taken out and a stand arranged in this place for the sale of refreshments.

Your committee would further recommend that these improvements, together

with others that may be necessary including certain repairs that are needed on the roof of the main building, be made at an early day, and not deferred until the rush of business immediately preceding our next State Fair.

Further your committee would venture to recommend that the two bridges, especially the east one, in the main building, be removed as a much desired improvement.

W. H. RAGAN,
S. W. DUNGAN,
JOHN P. BARNES,

Committee.

On motion of Mr. Lockhart, the report was referred to the Executive Committee.

Mr. Lockhart, from the Special Committee of Conference with the Woman's State Fair Association, made verbal report, but the Board insisted upon a written report, whereupon the committee asked for further time, which was granted.

On motion of Mr. Ragan, the Board resolved itself into committee of the whole on revision of the premium list. At 12:30 o'clock P. M. the committee rose.

Mr. Meredith resumed the chair.

Mr. Ragan, from committee of the whole, reported progress and asked leave to sit again.

Adjourned until 1:30 P. M.

AFTERNOON SESSION.

Board met pursuant to adjournment, President Meredith in the chair.

This being the time set for taking up the matter of protest, Quick vs. Wilson, Mr. Wilson was called upon for a statement of his defense to the protest, which was made.

On motion of Mr. Sunman, the protest and affidavits of witnesses in reference thereto were read.

On motion of Mr. Seward, the protest of Mr. Quick was sustained.

Mr. Lockhart, from the special committee appointed to confer with the Woman's State Fair Association, offered the following:

Your committee, appointed for the purpose of conferring with the officers of the Woman's State Fair Association, beg leave to make the following report:

After having a consultation with Mrs. M. E. Haggart and Mrs. F. M. Adkinson, the President and Secretary of said association, and carefully considered all the details of the work of last year (1881), we learn from those officers that, in their opinion, the work of this department can be done with much less help than was required to accomplish the work done in that department in 1881. With all confidence in the management of the Woman's Department of our State Fair, and believing that they will so manage the work as to make the expenses as light as possible in preparing for and managing the Fair of 1882, we would recommend that the sum of \$1,000 be appropriated for the use of that department, and that it be so divided that not less than \$600 of that sum be set apart for the payment of premiums, and that if any portion of that sum is not drawn out in payment of premium orders, that the same shall remain in the hands of the Treasurer of the Board: *Provided*, That all premium orders in this department shall be drawn by the Secretary of the State Board, and upon the authority of the committee's order books, and paid directly from the treasury as premium orders are paid in other departments, the ladies to have control of this department the same as last year.

R. M. LOCKHART,
JOSEPH GILBERT,
J. K. O'NEAL,
Committee.

On motion of Mr. Seward, the report was received and the committee discharged.

Mr. Gilbert offered the following, which was adopted:

Resolved, That the Woman's Department be referred to the Woman's State Fair Association, the same as last year; that six hundred dollars be offered for premiums, and the expenses of managing the department be audited and paid the same as expenses of other departments.

Mr. Lockhart moved that when the Board adjourn it be until September 25, 1882, at 10 o'clock A. M.

On motion of Mr. Banks, the Secretary was authorized to subscribe the Board a member of the National Trotting Association, and pay the fee of \$50 incident thereto.

The Board then resolved itself into committee of the whole on revision of the premium list, Mr. Ragan in the chair. At 8:30 o'clock P. M. the committee rose. Mr. Meredith resumed the chair, and Mr. Ragan, chairman of the committee of the whole, reported that the committee had completed its labors, and asked to be discharged. The report was accepted.

Mr. Gilbert moved that the premium on herd cattle owned and bred by exhibitor in Indiana, be stricken out. Not carried.

Mr. Lockhart moved that the purses in the speed-ring be limited to \$1,500. Not carried.

On motion of Mr. Sunman, a flock premium on sheep was added to Book 23, sweepstakes on sheep, for best flock of 7, one buck and six ewes, \$25.

On motion of Mr. O'Neal, the premium of \$30, for herd of Jersey cattle, was stricken from Book 12.

The programme for the Fair was taken up. On motion of Mr. Dungan, examination of sheep and hogs was fixed to commence on Tuesday morning instead of Monday, as heretofore.

On motion of Mr. Gilbert, the arrangement of the programme was referred to the Executive Committee.

On motion of Mr. Mitchell, the several members were allotted committeemen as follows:

On Horses—Messrs. Gilbert, Mitchell, Banks, Ragan, Meredith, one each.

On Jacks—Messrs. Quick, Ragan, O'Neal, one each.

On Cattle—Messrs. O'Neal, Barns, Quick, Mitchell, Hargrove, Ragan, one each.

On Sheep—Messrs. Banks, Dungan and Hancock, one each.

On Hogs—Messrs. Kirkpatrick, Lockhart, Custer, Gilbert, Dungan and Barns, one each.

On Agricultural Products—Messrs. Lockhart, O'Neal and Sunman, one each.

Gate Keepers—Messrs. Sunman, Lockhart, Barns, Hargrove, Meredith and Custer, one each.

On motion of Mr. Gilbert, the Secretary was instructed to make the circular for the annual meeting read as follows:

The Delegate Board consists of the State Board proper, and the President or other authorized delegate of the several County and District Societies.

The annual reports of the Societies must be presented and accepted before the Society is entitled to the county license fund.

A proposal was read from the florists of Indianapolis to decorate with flowers the western portion of the lower floor of the Exposition building for the sum of two thousand (\$2,000) dollars.

Which, on motion, was referred to a committee of three, consisting of Messrs. Gilbert, Seward and Custer.

On motion of Mr. Lockhart all unfinished business was referred to the Executive Committee.

Mr. Ragan offered the following:

Resolved, That the members of this Board will attend the commencement exercises of Purdue University in June next.

The President announced the Superintendents of Departments as follows:

Horse Department—W. A. Banks.

Cattle Department—S. R. Quick.

Hog Department—T. M. Kirkpatrick.

Sheep Department—S. R. Dungan.

Poultry Department—T. W. W. Sunman.

Agricultural Department—J. K. O'Neal.

Horticultural, except floral, Department—Joseph Gilbert.

Space in Exposition Hall and Floral Display—W. H. Ragan.

Power Hall and Engines—W. B. Seward.

Gates—Robt. Mitchell.

Amphitheater—B. H. Hancock.

Textile Fabrics—Woman's State Fair Association.

Geology and Natural History—Prof. John Collett.

On motion of Mr. Mitchell, the Board then adjourned to meet at the Fair Grounds, Monday, September 25th, at 10 o'clock, A. M.

EXECUTIVE COMMITTEE MEETINGS.

FEBRUARY SESSION.

AGRICULTURAL ROOMS, }
February 24, 1882.

The Executive Committee met on call of President Meredith, all the members present, viz.: Messrs. Mitchell, O'Neal, Barns and Seward.

Several deferred bills were examined and allowed as indorsed on the vouchers; also a review and approval of all bills and accounts since the 1st of January last.

Ordered, that the usual number of premium lists be printed

for distribution, with advertisements, and the contract for printing the same be left with the Secretary, the advertisements in same to cover the expense of printing.

APRIL SESSION.

AGRICULTURAL ROOMS, }
April 30, 1:30 o'clock, P. M. }

Agreeable to call of the President, the Executive Committee of the Board of Agriculture met, with President Meredith in the chair. Present: Messrs. Mitchell, Seward, Barns and O'Neal.

Memoranda of business taken up in order.

The premium on speed of \$2,000, as allowed by the Board at the February meeting, were allotted as follows:

	Puree.
Tuesday, September 26, running race, three premiums	\$100 00
Tuesday, September 26, pacing race, three premiums	135 00
Wednesday, September 27, three-minute trot, three premiums	200 00
Wednesday, September 27, 2:37 trot, three premiums	150 00
Thursday, September 28, running race, three premiums	200 00
Thursday, September 28, pacing race, three premiums	300 00
Thursday, September 28, trotters' race, three premiums	250 00
Friday, September 29, free-for-all trot, three premiums	400 00
Friday, September 29, consolation running race, three premiums	70 00
Total	\$1,805 00

The programme for each day of the State Fair was arranged and adopted, as it will appear in the official published list of premiums.

A communication from Galveston, Texas, in reference to a special ten-mile race by women riders, was laid on the table; also one in reference to Guernsey cattle premiums, and a proposition from F. L. Snyder, of Crawfordsville, in reference to spring races, were referred to General Superintendent Beeler, with authority to act.

The offer of a special premium by the *Prairie Farmer Co.* of a silver dinner castor, valued at \$20, for the best boar and two sows of any breed, was accepted.

The proposition from P. S. Kennedy, of Crawfordsville, on behalf of the Montgomery County Agricultural Society, for the Board to pay one-half the expenses of printing in pamphlet form the proceedings of the Farmer's Institute recently held there, amounting to \$25, was declined.

On motion of Mr. Mitchell, the premiums offered on displays were stricken from the list.

The style of posters used last season for State Fair was adopted, with change of color or arrangement as suggested by the Secretary, and 2,000 ordered printed.

On motion of Mr. Seward, the map of the State and plat of Fair Grounds were voted to be again included in the premium list for the season.

On motion of Mr. O'Neal, a committee, consisting of the President, Secretary and Mr. Seward, was appointed and instructed to arrange with Treasurer Wildman for additional bondsmen.

MORNING SESSION.

THURSDAY, April 27, 1882.

Agreeable to call of the President, the Executive Committee met in the Secretary's office at 10 o'clock A. M., with President Meredith in the chair.

Present: Messrs. Mitchell, O'Neal, Seward and General Superintendent Beeler.

Minutes of the last meeting of the Executive Committee read and approved, with some corrections.

On motion of Mr. Mitchell, the Treasurer's bond as presented was accepted, approved, and placed on file in the safe of the Board.

Adjourned to meet on the Fair Grounds after dinner, to consider improvements for this season.

AFTERNOON SESSION.

Executive Committee met on return from grounds.

Ordered, On motion of Mr. Mitchell, that the General Superintendent be authorized to make such repairs on the hog and sheep pens, and to cover all horse and cattle stalls with plank

where needed, as heretofore; also, to repair the bridges across the State ditch, or build new bridges, if found necessary; also, the roofs on the towers to be covered new, if found necessary, including the raised deck of the main building; also, that new lines of banisters be put up on all the stairways leading from the first to second floor of the main hall.

The Secretary reported having received the certificate of membership of the Board of Agriculture in the National Trotting Association, as ordered by the Board of Agriculture, in session February 23, 1882. Also, acknowledging the reception of entry fee, \$50, and \$6 for equipments, consisting of official records, ten copies of Rules and Regulations.

Ordered, On motion of Mr. O'Neal, that the Secretary correspond with the Secretary of the National Trotting Association, asking, that after the Board of Agriculture having become a member of such Association, and having previous to such membership leased the track to other parties for driving purposes, and occasional races during the summer, will the Board of Agriculture be required to report such races, and be responsible for any penalties incurred by such leases from irregularities thereby?

Ordered, That the Secretary be required to deposit the Treasurer's bond in the vault of the State Treasury, for safe-keeping.

AUGUST SESSION.

AGRICULTURAL ROOMS, }
Aug. 1; 1882, 10 o'clock A. M. }

Agreeable to call, the Executive Committee met. Present: Messrs. Mitchell, O'Neal, Custer and Superintendent Beeler, with Mr. Mitchell chairman.

The minutes of the last meeting of the Executive Committee were read, approved and signed.

Mr. O'Neal offered the following resolution, which was adopted:

WHEREAS, Since the last meeting of this Executive Committee, the President of the Board of Agriculture and chairman of this committee, Henry C. Meredith, our young and able leader, was removed from our midst by the hand of death, occurring on the fifth day of July, 1882. Therefore, be it

Resolved, That the Vice President of the Board, L. B. Custer, is now, by virtue of his official position as successor, the President of the Board of Agriculture, for the unexpired term of the late President.

Mr. Custer being present, was then invited to the Chair, and responded as follows:

KIND FRIENDS: For the first time since the organization of the State Board of Agriculture, has it become necessary for the Vice President to assume the entire duties of President. In accepting this position I can not forget how important, intricate and often embarrassing are the duties of the Chair. I shall need your constant encouragement, support and advice, and I rely with confidence in your lenient judgment, of any errors into which I may fall. In return I can assure you that it is my earnest purpose to treat you all with courtesy and just consideration.

After a review of the business before the committee, as presented by the Secretary, the committee took a recess until after dinner.

AFTERNOON SESSION.

President Custer in the Chair. Messrs. Seward and Barns were present, making a full Board.

Special attractions for the Fair were discussed, and action postponed until after meeting the citizens' committee, as invited.

Ordered, That the complimentary and all privilege tickets be good for admission only at the east entrance of the main building, No. 3, according to the rule, to be printed on each ticket so issued.

A committee from the Indianapolis Floral Association being present, a conference was held with them, they insisting on additional premiums on floral display at the State Fair to the extent of several hundred dollars. No action was taken, and the list of premiums in the Horticultural Department left without change.

Mr. Ragan submitted a verbal proposition to use all the west end of the first floor of the Exposition Hall for agricultural and horticultural purposes, and abandon the same for machinery.

Mr. O'Neal moved that so much of the first floor, west end, of the Exposition Hall as may be necessary, be used for horticultural purposes. Carried.

Messrs. A. H. Brown and Ingram Fletcher, of Indianapolis, being present by invitation, expressed their views on the Fair interests in connection with the city, when,

On motion of Mr. Seward, a committee was appointed, composed of Messrs. Seward, Mitchell and Heron, on the part of the Board, and Messrs. Brown, Gall and Fletcher, on the part of the city, to bring the matter before the Board of Trade.

A motion to invite President Arthur and Dr. George B. Loring to be present and address the visitors at the State Fair, was laid on the table.

On motion of Mr. Mitchell, Dr. D. W. Voyles, of New Albany, was appointed for expert judge on Jersey cattle, as ordered by the Board.

On motion, Mr. Beeler, General Superintendent was appointed, and authorized to solicit exhibitors in the city for the coming exhibition.

Ordered, On motion, that the Secretary is hereby authorized to contract for all the tickets necessary for the State Fair.

On motion, the appointment of Capt. J. C. White, of Englewood, Ill., by the Indiana Poultry Association, was approved.

Several matters in reference to improvements, and of a miscellaneous nature, were referred to the General Superintendent and Secretary, and the Committee adjourned to meet on call.

STATE BOARD MEETINGS

DURING THE FAIR.

FIRST DAY.

EXPOSITION BUILDING, FAIR GROUNDS,
MONDAY, Sept. 25, 1882, 10 o'clock A. M. }

Board met agreeable to adjournment, President Custer in the chair. On call of the roll, Messrs. Mitchell, Quick, Barns, and Banks answered to their names. There being no quorum present, adjourned to meet at 2 o'clock P. M.

AFTERNOON SESSION.

Board met. President Custer in the chair. The following members were present: Messrs. Mitchell, Hancock, Seward, Sunman, Quick, Dungan, Gilbert, Barns and Banks.

On motion, the reading of the minutes was postponed until the evening session.

Captain Richardson, of the Richardson Zouaves, appeared before the Board and proposed to give an exhibition drill of his company on Friday afternoon.

On motion, his proposition was accepted with thanks. And on further motion, it was ordered that the Captain and his company be admitted to the grounds on that occasion without charge.

On motion of Mr. Mitchell, it was ordered that delivery wagons and one driver each, be admitted free before nine o'clock, A. M., and that after that hour the driver must have a ticket, the wagon being passed free.

The Secretary read to the Board a letter in reply from Dr. D. W. Voyles, in which he declines to serve as expert judge of Jersey cattle. The names of several persons were presented.

On motion of Mr. Mitchell, the Secretary was instructed to telegraph to William E. Higgins, at Shelbyville, Indiana, requesting him to come at once and serve as committee on Jersey cattle, and failing to secure him, that he telegraph a like request to A. L. Davis, Dublin, Indiana.

On motion it was ordered that the Secretary receive entries in the speed ring until the evening before the race.

The Secretary read a letter from W. C. Donaldson, of Montezuma, a former member of the Board, saying he was eighty years of age on the 22nd of August last, and tendering his compliments to the Board.

On motion the Board adjourned to meet this evening at 7:30 o'clock, in the Agricultural Rooms.

EVENING SESSION.

The Board met in the Agricultural Rooms at 7:30 o'clock p. m., President Custer in the chair. Present: Messrs. Mitchell, Hargrove, Hancock, Quick, Dungan, Gilbert, Barns, O'Neal, Kirkpatrick and Banks.

The minutes of the previous meeting were read, approved, and signed by the President.

On motion of Mr. Mitchell, it was ordered by the Board that a committee of three be appointed to prepare resolutions expressing the feelings of the Board touching the death of the President, Henry C. Meredith, and that the committee report Wednesday morning.

The President named Messrs. Mitchell, O'Neal, Hargrove and Seward, to constitute such committee, and it was so ordered.

Objection being made to the proposed performance of a certain band of negro minstrels and a certain Italian band upon the grounds for exhibitors in the Mechanical Department, it was moved by Mr. Hancock that they be allowed to perform

during good behavior. Upon a division had, five voted in the affirmative and five in the negative. The President gave the casting vote in favor of the motion, and it was so ordered.

A committee consisting of Mr. Joseph Cole, of Posey county; Mr. Jackson, of St. Joseph county; and Mr. David Munter, of Marion county, was appointed to award premiums in Book 1; heavy draft horses. For Book 2, horses for general purposes, John Marshall, of Harrison county, and John Davis, of Cass county, were named. For Books 12 (Jersey), 13 (Devons), 14 (Ayrshires), and 15 (Holsteins), T. F. White, of New York, and William E. Higgins, of Shelby county, were nominated and appointed as a committee. For Book 18, fine wool sheep, Moses Butterworth, of Laporte county, was nominated and appointed as a committee. For Book 24, Berkshire hogs, Wm. T. Manning of Howard county, Walter Stephens, of Washington county, and Orlando Siples, of Pike county, were nominated and appointed a committee.

On motion, the Board adjourned to meet at the Exposition Grounds at 9 o'clock to-morrow morning.

SECOND DAY.

MORNING SESSION.

TUESDAY, Sep. 26, 9 o'clock A. M.

The Board met, President Custer in the chair. Present: Messrs. Mitchell, Hargrove, Hancock, Sunman, Dungan, Gilbert, Ragan, Barns, O'Neal and Kirkpatrick.

On motion of Mr. Hargrove, Prof. R. T. Brown was appointed Chairman of the Committee on Books B and F, and, as such, empowered to fill the committee.

On motion of Mr. Hargrove, S. J. Tomlinson was appointed Chairman of the Committee on Books C and D, and, as such, empowered to fill the committee.

On motion, the Board took a recess until 2 o'clock this afternoon.

AFTERNOON SESSION.

The Board resumed its session. Present: Messrs. Custer, Hancock, Mitchell, Kirkpatrick, O'Neal, Gilbert and Seward. Mr. Custer in the chair.

After due consideration, by unanimous consent, the President was instructed to confer with the managers of the proposed negro minstrel and Italian band performances, and, if possible, persuade them to abandon the same.

The Board then adjourned until 9 o'clock to-morrow morning.

THIRD DAY.

MORNING SESSION.

WEDNESDAY, Sept. 27, 1882, 9 o'clock A. M.

The Board met, President Custer in the chair. Present: Messrs. Mitchell, Hargrove, Hancock, Seward, Dungan, Gilbert, Ragan, Barns, O'Neal and Lockhart.

The minutes of proceedings had on Monday and Tuesday were read, and appearing full, true and complete were accepted and approved.

Mr. Mitchell, from the committee appointed on Monday to prepare resolutions relative to the death of the President, Henry C. Meredith, reported orally, and asked that time be given until the January meeting to report in writing.

By unanimous consent, time was granted as requested.

On motion, Messrs. Lockhart and Hargrove were empowered to select a committee and assign Book E.

By unanimous consent, it was ordered that pioneers appearing at the gates be admitted free, as heretofore.

On motion of Mr. Lockhart, it was ordered that Book A be assigned to Mr. Seward, with a request for himself to prepare, or to procure a competent person to prepare, a report.

On motion, book G was assigned to Prof. R. T. Brown, as a committee.

On motion, the special premium offered by C. A. Wallingford, architect, was, for assignment, referred to Mr. Seward, or a committee to be appointed by him.

It having come to the knowledge of the Board that the Superintendents of some of the Departments are issuing tickets to exhibitors in violation of the rules, on motion of Mr. Seward, it was ordered that the President inform the Superintendents, that no free tickets are to be issued to exhibitors, who are contending for cash premiums, using, however, a sound discretion in cases that may appear to them exceptional.

The Board then took a recess until 2 o'clock P. M.

AFTERNOON SESSION.

The Board resumed its session, but no business being presented, recess was taken until to-morrow morning at 9 o'clock.

FOURTH DAY.

MORNING SESSION.

THURSDAY, Sep. 28th, 1882, 9 o'clock A. M.

The Board resumed its session. Present all the members except Messrs. Banks and Kirkpatrick.

The minutes of yesterday were read and approved.

A protest was received which read as follows:

INDIANAPOLIS, Sept. 27th, 1882.

We, the undersigned, breeders of Jersey cattle, do hereby join with W. J. Hasselman, in his protest of award on Jersey cattle, in the class of two years old and under three, on the grounds that said cattle could not be brought to the ring as quickly as others that were on the ground in readiness to be shown. The ribbons were tied just previous to the entrance of Hasselman's cattle to the ring.

W. J. HASSELMAN,
SAMUEL McKEEN,
W. P. IJAMS,
M. F. SHALTER,
J. J. SCARFF & SON.

I hereby certify that I told Mr. Quick, the cattle were being led over to the ring and to wait, but he would pay no attention to it and ordered the cattle to be judged at once.

L. W. HASSELMAN.

I hereby certify that the Stock Superintendent told me he would give me ample time to get Mr. Hasselman's cattle to the ring, as I only had four men to handle them.

ELISHA COPELAND,
Herdsmen.

(Indorsed.)

The statements of Mr. Quick and Mr. Jones, his assistant, having been heard, on motion, action was postponed and the Superintendent was instructed to confer with the complaining parties and report.

A request was received from Messrs. Beatty, St. Clair and Raines, to reduce the running race for to-day, from three in five, to two in three mile heats.

On motion, it was ordered, that the running race, now three heats in five, be changed to two heats in three.

On motion the Board took recess until 2 o'clock P. M.

AFTERNOON SESSION.

The Board resumed its session. A protest was received as follows:

INDIANAPOLIS, IND., September 28, 1882.

To the Honorable State Board:

We, the undersigned exhibitors, hereby enter our protest against the awarding of premiums in light harness stallions, three years old and over, for the reason that we believe the decision is unjust, and ask for a new committee.

W. O. CANADAY,
S. F. GRAY.

On motion of Mr. Mitchell, the protest was laid on the table.

On motion of Mr. Sunman, the Board took recess until to-morrow morning at 9 o'clock.

EVENING SESSION.

At an informal meeting of the Board, held at the Grand Hotel, at 7 o'clock P. M., the members present were informed that near the northeast corner of the Exposition Building,

about 4 o'clock this afternoon, a child was run upon and injured by a traction engine. Thereupon, by unanimous consent of all members present, Messrs. Custer, Lockhart and Seward were constituted a committee to at once make all necessary investigation of the condition of the child and its parents, and render all proper aid; and Mr. Seward, Superintendent of that department, being absent, Mr. O'Neal, with Messrs. Custer and Lockhart, proceeded to discharge the duties imposed.

FIFTH DAY.

MORNING SESSION.

FRIDAY, September 29, 1882, 9 o'clock A. M.

The Board met, President Custer in the chair. The members all present, except Messrs. Hargrove, O'Neal, Kirkpatrick and Lockhart.

The minutes of yesterday were read and approved.

The proceedings had at the informal meeting held at the Grand Hotel last evening, were reported and made a matter of record. On motion, the action so had was approved and confirmed, and the committee so appointed was constituted the committee of the Board, and instructed to complete the work assigned it.

On motion, the protest of W. O. Canaday and S. F. Gray received yesterday, was taken from the table for action; thereupon,

On motion, it was ordered that the action of the Awarding Committee be approved.

The protest of L. W. Hasselman was taken up for further consideration; thereupon Mr. Quick reported that he had conferred with the parties and failed to make an amicable adjustment, and that neither gentleman is willing to have the show repeated.

On motion, his report was received and the award sustained.

On motion of Mr. Mitchell, it was ordered that Mr. Ragan be authorized to select the Committee on Book H.

On motion, it was ordered that locating the two additional Farmers' Institutes, and making arrangements for holding them, be left to the Executive Committee.

On motion, it was ordered that the General Superintendent clear off and remove the old sheds and cattle stalls, realizing for the material as much as possible, and that the Secretary cause the new ones to be insured.

Mr. Gilbert offered the following resolution:

WHEREAS, James Vick, Seedsman and Florist, of Rochester, New York, has made a fine display of cut flowers and floral designs, adding much to the attractions of the Fair, without competing for any of the Society's premiums; therefore
Resolved, That a gold medal be awarded to him for the same.

On motion, the resolution was adopted.

The Board then took recess until 2 o'clock this afternoon.

AFTERNOON SESSION.

Board met, President Custer in the chair.

Mr. Ragan reported a case of imposition and false pretense practiced upon the doorkeepers.

After some unimportant business, on motion, the Board took recess until to-morrow morning at 9 o'clock.

SIXTH DAY.

MORNING SESSION.

SATURDAY, September 30, 1882, 9 o'clock.

Board met, President Custer in the chair. Present: Messrs. Hancock, Seward, Sunman, Quick, Dungan, Gilbert, Ragan, Barns and Kirkpatrick.

The minutes of previous meetings read and approved.

A notice of protest was received as follows:

INDIANAPOLIS, 5 P. M., September 29, 1882.

W. B. Seward, Superintendent:

SIR—Having just been informed of the decision of the Committee on Special Premium on Best Sash Lock, we respectfully protest against the decision of said committee, and would ask that they give it further consideration.

Yours respectfully,

YEAGLEY, MURPHY & CO.

On motion of Mr. Ragan, action was postponed until the January meeting, 1883.

On motion of Mr. Ragan, it was ordered by the Board that the Executive Committee, as soon as possible, ascertain the amount of net receipts that can be applied on the bonded debt and apply the same immediately, reserving so much only as may be prudent and necessary to pay current expenses of the Board.

On motion of Mr. Sunman, it was ordered that any and all unfinished business be referred to the Executive Committee.

The Board then adjourned.

EXECUTIVE COMMITTEE MEETINGS.

EXPOSITION HALL, Oct. 10, 1882.

Agreeable to call, the Executive Committee of the Board of Agriculture met in the Secretary's office at the Exposition building, at 10 o'clock, A. M.

Present, Messrs. Custer, Barns, Seward, Superintendent Beeler and Secretary Heron, with President Custer in the chair. A general review of the business affairs of the Board was had, and a report from Mr. Seward as to settlement with the Treasurer of tickets unsold at the State Fair, showing the sales of tickets Fair week to be as follows:

From 50 cent tickets	\$18,794.00
" 25 " "	1,440.75
" 10 " "	631.10
Total sales.	<u>\$20,865.85</u>

AFTERNOON SESSION.

The Executive Committee met in the office of the State Geologist, (as the Agricultural rooms were being renovated.) Mr. O'Neal was present. Mr. Mitchell, of Gibson county, the only member absent.

Several bills and accounts were allowed as indorsed on each voucher. An estimate of the receipts of the last State Fair placed the amount at about \$26,500, and the expenses and premiums paid at about \$20,000.

This, including about \$5,000 of improvements, owing to the lumber bills not being in, could not be exact; also, several other bills were not yet in.

The rough estimates of accounts showed over \$15,000 of surplus at present in the treasury.

Whereupon, on motion of Mr. Seward, and in accordance with the instructions of the Board, the Treasurer, J. A. Wildman was instructed to cancel \$10,000 of the \$50,000 State Board bonds, paying the accrued interest to the date of payment.

Ordered, That \$2,000 of insurance be placed on the new stalls on the north and west side of the grounds, and \$1,000 of a wind-storm policy on the amphitheatre.

Ordered, That a silver medal be offered for the best report from any county or district agricultural society for the year 1882.

The programme for the next annual meeting was duly considered and referred to the Secretary, and Mr. Seward delegated to confer with Governor Porter as to his suggestions in reference to questions to submit to the agricultural societies.

After some unimportant business the Board adjourned.

ANNUAL MEETING, 1883.

AGRICULTURAL ROOMS,
TUESDAY, Jan. 2, 1883, 10:30 A. M. }

Agreeable to law, the Delegate State Board of Agriculture met in annual convention, President Custer in the chair, this being the thirty-first session.

The roll of the State Board proper was first called, when the following members responded:

- 1st District—Robert Mitchell, Princeton, Gibson county.
- 2d District—Hon. Samuel Hargrove, Union, Pike county.
- 3d District—B. H. Hancock, Fredericksburg, Washington county.
- 4th District—Hon. W. B. Seward, Bloomington, Monroe county.
- 5th District—T. W. W. Sunman, Spades, Ripley county.
- 6th District—S. R. Quick, Columbus, Bartholomew county.
- 7th District—S. W. Dungan, Franklin, Johnson county.
- 8th District—Hon. Joseph Gilbert, Terre Haute, Vigo county.
- 9th District—Hon. W. H. Ragan, Clayton, Hendricks county.
- 10th District—Vacant.
- 11th District—John P. Barns, Anderson, Madison county.
- 12th District—Hon. J. K. O'Neal, Lafayette, Tippecanoe county.
- 13th District—Hon. T. M. Kirkpatrick, Kokomo, Howard county.
- 14th District—L. B. Custer, Logansport, Cass county.
- 15th District—W. A. Banks, Door Village, Laporte county.
- 16th District—Hon. R. M. Lockhart, Waterloo, DeKalb county.

Following which the roll of counties in the State was called for delegates from county societies, when the following named gentlemen responded:

COUNTY SOCIETIES.

COUNTIES.	DELEGATES.	POSTOFFICE.
Allen (Northern Indiana)	J. D. G. Nelson	Fort Wayne.
Bartholomew	Dick Jones	Columbus.
Blackford	Gilbert Wilson	Hartford City.
Boone	Jacob Cobb	Lebanon.
Cass	L. B. Custer	Logansport.
Clark	Dennis F. Willey	Charlestown.
Clay	James S. Hoskins	Brazil.
Dearborn (Lawrenceburg Agr'l Ass.)	W. H. O'Brien	Lawrenceb'g.
Decatur	W. W. Hamilton.	Greensburg.
Delaware	John M. Graham	Muncie.
Fayette	A. B. Claypool	Connersville.
Fulton	N. A. McClung	Rochester.
Gibson	W. M. Cockrum	Oakland City.
Grant	J. A. Gauntt	Marion.
Hamilton	L. B. Tomlinson	Westfield.
Harrison	John Q. A. Sieg	Corydon.
Hendricks	M. C. Ensinger	Danville.
Henry	J. R. Peed	New Castle.
Howard	David Smith	Vermont.
Huntington	Willis A. Jones	Huntington.
Jackson	John Scott	Brownstown.
Jasper	Geo. H. Brown	Rensselaer.
Jay	Jonas Votaw	Portland.
Jennings	Joseph B. Smith	Queensville.
Johnson	Henry S. Byers	Franklin.
Knox	H. A. Foulds	Vincennes.
Lagrange	F. D. Merritt	Lagrange.
Laporte	L. S. Fitch	Oakland.
Madison	J. P. Barns	Anderson.
Marion	J. J. W. Billingsley	Indianapolis.
Marshall	Wm. Scofield	Plymouth.
Montgomery	Jasper A. Davidson	Whitesville.
Noble	Orlando Kimmell	Ligoneer.
Parke	R. C. McWilliams	Rockville.
Perry	J. C. Shoemaker	Indianapolis.
Pike	A. J. Patterson	Union.
Pulaski	J. B. Agnew	Winnemac.
Putnam	M. Hazelette	Greencastle.
Randolph	D. E. Hoffman	Winchester.
Ripley	T. W. W. Sunman	Spades.
Rush	R. W. Rich	Falmouth.
Shelby	John Blessing	Shelbyville.
St. Joseph (North Indiana).	Aaron Jones	South Bend.
Stenben	A. W. Hendry	Angola.
Tippecanoe	J. K. O'Neal	Lafayette.
Tipton	Wm. Barlow	Tipton.
Vigo	Wm. S. Beauchamp	Terre Haute.
Wabash	Warren Mason	Wabash.
Warren	G. B. McClafflin	Williamsport.
Warrick	T. M. Howard	Boonville.
Washington.	Samuel B. Voyles	Salem.
Wells	J. A. Wiley	Bluffton.

DISTRICT SOCIETIES.

DISTRICT.	DELEGATE.	POSTOFFICE.
Bridgestown Union . . .	Dempsey Seybold. . . .	Perth, Clay County.
Cambridge City	L. L. Lawrence.	Richmond.
Dunkirk Union	D. B. Moore	Dunkirk, Jay County.
Edinburgh Union	Jacob Mutz	Edinburgh, Johnson Co.
Fountain, Warren and Vermillion	David Webb.	Covington, Fountain Co.
Hamilton, Madison and Delaware.	N. R. Elliott.	Mechanicsburg, Henry Co.
Knightstown Union . . .	J. Ward Walker	Greenfield, Hancock Co.
Loogootee District . . .	Thomas Walker	Loogootee, Martin County.
Northeastern District . .	R. M. Lockhart	Waterloo, DeKalb County.
Plainfield Agriculture . .	Amos Alderson.	Plainfield, Henderson Co.
Southeastern Indiana . .	D. Lostutter, Jr.	Aurora, Dearborn County.
Switzerland and Ohio . .	Jesse W. Stewart	Rising Sun, Ohio County.
New Ross Agriculture . .	John Lockridge	Mace, Montgomery County.

STATE INDUSTRIAL ASSOCIATION.

ASSOCIATIONS.	NAMES.	POSTOFFICE.
Woman's Fair Assoc'n.	Mrs. M. E. Haggart. . .	Indianapolis.
State Horticul'l Society .	Dr. A. Furnas	Danville.
Swine Breeders	Dick Jones	Columbus.
Wool Growers.	Fielding Beeler	Indianapolis.
Bee Keepers	I. N. Cotton	Traders Point, Marion Co.

PROGRAMME—ANNUAL MEETING.

TUESDAY, JANUARY 2, 1883.

Organization of the Convention at 10:30 A. M.

Report of the Committee on Resolutions on the death of H. C. Meredith.

President's address at 1:30 P. M., followed by reports from the officers and department superintendents.

Appointment of joint committees of delegates and members.
Nominations to fill places of retiring members.

Address by Governor Porter at 3:30 P. M.

EVENING SESSION—7:30 P. M.

Address by Dr. George B. Loring, the U. S. Commissioner of Agriculture, in the Park Theater building. This address will be by special invitation, and such as every farmer and business man should hear. All are invited. Admission free.

WEDNESDAY, JANUARY 3—8:30 A. M.

Reports from committees: Finance, Rules, etc., Fair Grounds, Premium List, Geology, and unfinished business. Review of business matters.

Election of eight members at 1:30 P. M.

3 o'clock P. M.—Address by Adam Earl, of Lafayette, Ind.; subject: "Grade Cattle."

4 o'clock P. M.—Address by Prof. F. A. Friedley, of New Albany; subject: "Education Necessary to Successful Farming."

EVENING SESSION—7:30 P. M.

Lecture by Prof. H. W. Wiley, of Purdue University; subject: "Sorghum, its Success and Value."

Lecture by Prof. W. C. Latta, of Purdue University; subject: "Practical Value of Instruction in Agriculture."

THURSDAY, JANUARY 4—8:30 A. M.

All unfinished business.

The following carefully prepared papers will be presented, subject to the pleasure of the Convention, as time will permit:

"Our Productive Industries," by J. B. Conner, Chief of the Bureau of Statistics.

"The Manufacturing Industries of Indiana," by Hon. Aaron Jones, of St. Joseph county.

"Best, Most Useful and Profitable Grasses, for Different Purposes—the Quantity of Seed Sown to the Acre to Produce the Best Results, and the Proper Methods of Converting the same into Well-cured Hay," by Hon. I. D. G. Nelson, of Allen county.

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"The Soils of Indiana and Their Adaptation," by Dr. R. T. Brown, of Marion county.

"Restraining of Stock Running at Large," by Thomas Nelson, of Parke county.

"Timber Culture," by Dr. A. Furnas, of Hendricks county.

"Does Farming Pay in Indiana? If not, Why Not?" by Hon. R. M. Lockhart, of DeKalb county.

"Fish Culture," by Calvin Fletcher, State Fish Commissioner.

Other appropriate essays are expected. General remarks and discussion will be in order, and follow each address or essay.

AFTERNOON SESSION.

Board met at 1:30 P. M., President Custer in the chair.

The Committee on Resolutions, expressive of the sense of the Board on the death of H. C. Meredith, reported.

Since the last annual meeting of this Board we have been called to mourn the death of one of its most honored members, Henry C. Meredith, President of the State Board of Agriculture, who died at his residence near Cambridge City, Indiana, on the 5th day of July, 1882, after an illness of twelve days.

Mr. Meredith was born in Cambridge City, July 17, 1843, being nearly thirty-nine years of age at the time of his death. He was educated at the Indiana State University, always standing high in his class for scholarship and deportment; a young man giving great promise of a long, honored and useful life, but was cut down in his early manhood.

This sad death seems even more sad, when we remember that with his death his line became extinct, he being the last male member of a family known and honored throughout the State, and, indeed, the whole country.

When we contemplate this sad case, we are led to exclaim with the poet: "Oh, why do the good die first, and they whose souls are dry as summer dust burn to the socket?" But it is said "Death loves a shining mark," and that there is a time for all things, death among the rest.

It is fitting and proper that a suitable memorial resolution should be spread upon our records, it is, therefore,

Resolved, That in the death of Henry C. Meredith, President of the State Board of Agriculture, we have sustained a great and irreparable loss, the State an honored and valuable citizen, his brave and loving wife a loss, compared to which all others are as nothing.

ROBERT MITCHELL,
J. K. O'NEAL,
SAMUEL HARGROVE,
W. B. SEWARD,
Committee.

The resolutions were adopted, and ordered spread on the records after some very eulogistic remarks by members, as follows:

Remarks by W. B. Seward:

"It was my fortune to be intimately acquainted with him in his early days. I have reference to the time of his attending the State University at Bloomington. I can say that I never knew a man in all my life who was sent away from home where there were all kinds of temptations thrown in his way, that carried himself more virtuously and upright than he. He was a model young man. I never saw his deportment excelled by any one, under any circumstances. After he left college I never knew much about him; but he went West and assisted his father in surveying, after which he came back to Cambridge City, and shortly afterward married a Miss Claypool, one of the most amiable and lovely women I ever knew. He was an honored and valuable member of this Board, a man of as great promise as any one I ever knew. In his death we have sustained one of the greatest losses that could have fallen to us. His name will always be honored in this State. His father was a pioneer, and one of the first to introduce the subject of blooded stock. His son inherited all the love and enthusiasm of his father in improving stock of all kind, and would have filled the same useful and important place in this respect as his father, had he lived."

Mr. Mitchell. The death of an honored man always casts a gloom over any community, and this was especially so in the neighborhood where the deceased lived. Having attended the funeral of our President, I had a good opportunity to see the high esteem in which he was held by his neighbors and acquaintances, as evidenced by so many of them in attendance at the funeral. In the death of H. C. Meredith, the agricultural interests of the State suffered a loss. Just as he had reached the highest position in the agricultural affairs of the State, that grim monster, death, cut him down from the place of his greatest usefulness. So that the agricultural, and especially the live stock interests, lost one whose whole soul seemed to be engaged in trying to excel by having the best stock in the State, and he was a man with an iron will in carrying out his ideas.

EULOGY.

BY J. K. O'NEAL, OF TIPPECANOE COUNTY.

Mr. President: I can not allow this opportunity to pass without offering my humble tribute to the memory of my beloved friend, Henry C. Meredith. It was my good fortune to have formed his acquaintance in his early manhood, and well do I remember how his noble bearing attracted and attached me to him. He was the soul of honor. With what melting kindness he treated all. To fortune's favorites he rendered all that was due, and equally his great heart went out to those in the humble walks of life.

To the State Board of Agriculture his loss is irreparable. His knowledge, large and varied on all subjects, but to things that related to its welfare and usefulness, he had the accumulated gatherings of two generations. As a legislator, he had the rare ability which enabled him, at once, to discern and separate the interests of individuals and corporations from the real ones of the State, and the honesty to act on his knowledge. I served with him in the Legislature of 1881, and I have rea-

son to know that his fearless honesty, as a member of the Ways and Means Committee, saved to the State of Indiana many thousands of dollars. Many times, as I have looked on his manly form, I have thought to myself, what a future for good was before him, that years after I should be laid in the grave, his great head and heart would be laboring for the interest of my great State. Oft, when leaning on his strong arm, I have felt that in his presence, death was almost disarmed; but the ways of Providence are hidden from mortal ones, and he has been taken in the very morning of his usefulness. To his most excellent widow, whose loss so far exceeds all others, I have only this poor consolation to offer, that with her uncontrollable grief are mingled the tears of thousands of the good all over our beloved country.

THE LAST OF A PUBLIC-SPIRITED FAMILY.

From the Wayne Citizen.

It was a source of real sorrow to our people when the announcement was made on last Wednesday morning, that Henry Clay Meredith was dead.

He had just returned from Chicago, where his blooded cattle had been sold, and in a few days afterward took cold, probably from over-exertion, and was taken down with strong symptoms of pneumonia. From Saturday until Wednesday morning, July 5, he grew alarmingly worse, and at 7:50 he breathed his last. For the major part of his time he was in a state of unconsciousness, suffering from a raging fever, through which Dr. Rutledge and Dr. Weist of Richmond, and Dr. Jameson, of Indianapolis, could not relieve him, despite their utmost professional skill.

Mr. Meredith was born in this place, on July 17, 1843, his age at death being 38 years, 11 months and 18 days. He was the third of four children, and the last representative of General Sol. Meredith's family.

His elder brother, Lient. Samuel H., was born May 28, 1838, entered the United States' service in July 1861, and died January 22, 1864.

Capt. David M., the second brother, was born May 19, 1840, and died April 4, 1867. For bravery and meritorious services at the battle of Chickamauga, in 1863, he was brevetted major. Many of our older citizens, and scores of his comrades, remember him as a brave and generous man.

Mary, the only sister, died in her infancy, April 3, 1846—born May 12, 1845.

Anna Hannah, the mother of the last deceased, and daughter of Samuel and Eleanor Hannah, was born in Fayette county, Pa., April 12, 1812, and died at the family homestead, this city, November 11, 1871.

Major-General Solomon Meredith, the father, was born in Guilford county, N. C., May 29, 1810, and died in this city October 21, 1875.

Thus, one by one, this family of brave and generous people were cut off, until the last sheaf of the harvest of death was gathered in, in the person of Henry C. Meredith's manly form. Henry C., during his early life, was given all the educational advantages of this immediate neighborhood, together with tuition at Fairview Academy, and, in 1863, entered the Freshman class of the State University at Bloomington, from which institution he graduated, in 1867. For the two years following he assisted his father, who held the position of Surveyor-General of Mon-

tana. In 1869 he returned to this city and bought the *Western Mirror* of Lafayette Develin, and made a Republican paper of it. He made a decided success of his venture for three years, most of the time in connection with the writer of this. In April, of the same year, he was married to Miss Virginia Claypool, daughter of A. B. Claypool, of Connersville. After the campaign of 1872 he sold his interest in the *Tribune*—the name he had given the paper—and engaged with his father in farming and dealing in thoroughbred cattle, from which enterprising business this section and the whole country, in fact, reaped incalculable benefits, in the introduction of improved stock. In the fall of 1880 he was elected a member of the legislative House from this county, and made his mark upon the legislation of the State to a larger extent than usual with new members. At the time of his death he was the President of the State Board of Agriculture.

In public life, Henry C. Meredith was careful, liberal, and always seemed to make an effort to identify himself with the best public interests, not forgetting his own constituency. In private he was unostentatious, charitable, generous. Socially, but few were his superiors, and in loyalty to his family and friends he had few equals. To his thousands of friends at home, and all over the country, he left a rich legacy of kindest remembrance of friendly intercourse.

All that is left is the faithful, bereaved widow, whose sorrow shall not be measured even by the pen of one who knew the deceased through the intimate associations of business.

The funeral took place at the family residence at 3 o'clock to-day, and was attended by an immense audience. The interment was made at the family burying ground, where the Meredith monument stands.

CAMBRIDGE CITY, July 7, 1882.

On motion, Messrs. Mitchell, Lockhart, Jones, Mutz and President Custer were appointed a committee to receive and welcome Dr. Geo. B. Loring to the city, expected on noon train.

On motion, adjourned until 1:30 P. M.

On motion, Messrs. J. P. Barns, W. H. Ragan and J. Q. A. Sieg were appointed a Committee on Credentials.

Mr. Mitchell was called to the chair, and the President delivered his address as follows:

PRESIDENT'S ADDRESS.

Members of State and Delegate Board:

We are assembled to-day in accordance with law, "for the purpose of deliberation and consultation, as to the wants, prospects and condition of the agricultural interests throughout the State." It affords me great pleasure, gentlemen, to greet you, and welcome you, to this our thirty-second annual meeting, as the representatives of that great interest, the basis of all wealth, to which all other interests are dependent.

I am happy to see before me so many familiar faces, old friends and laborers of pioneer days. I see here also many whose presence is new to us, and whose voices have not been heard at our meetings heretofore. There are a number of important and interesting topics that will be presented for discussion during this meeting, in which I trust you will all take part.

For the first time since the organization of the State Board of Agriculture, thirty-one years ago, it became necessary for the Vice President to assume all the duties of President.

On the 5th day of July we were shocked by a telegram announcing that our worthy President, H. C. Meredith, was stricken down; had passed from labor to his reward; just in the prime of life, full of vigor, energy and hope of the future. You have heard the report of the committee on condolence.

The work of the State Board of Agriculture for the past year, has been unusually satisfactory to the managers, and I trust also, to you.

Early in the season, after mature deliberation, it was deemed best to renew the fence and horse stalls on the north line of the Fair grounds, and also the fence on the west end, with cattle stalls in connection with the same. There were 188 horse, and 148 cattle stalls erected in a permanent and otherwise attractive style. These, with other necessary improvements and repairs, caused an expenditure of \$5,850. For the coming year other needed improvements will be necessary.

The State Fair of 1882 was a complete success in every respect, in point of attendance as well as in quality and quantity of animals and articles on exhibition. Although, in some classes, not so large as heretofore, but of superior merit and excellent quality.

In implements and machinery the display was simply immense. Every available space was occupied, and much more could have been filled.

In the Woman's Department the attractions were many, and of superior excellence. The lady managers of that department are entitled to great credit for their earnest work and untiring industry.

In the Cattle Department I would recommend an increase of the premiums on herds of beef cattle, and probably many others should be increased. Many of our premiums are lower than those offered by some county societies.

A full and complete statement of the receipts and expenditures for the past year will be submitted to you in the able and concise reports of the Secretary and Treasurer.

Those of you who have been with us annually for a number of years, are aware of the fact that our financial condition up to 1881 was anything but satisfactory. One year ago your President informed you that our financial condition was much improved by a new loan at six per cent. interest instead of eight; and also, that the Board had paid off five of the original bonds of \$1,000 each. Permit me to inform you of the pleasant fact, that during the past year the State Board have further reduced that indebtedness by the payment of \$15,000, thus reducing the bonded indebtedness to \$40,000, which makes a very favorable exhibit of our finances, in comparison with two years ago.

You will recollect that at our last annual meeting, it was recommended that there be held a series of four Farmers' Institutes, at various points in the State. In com-

pliance with that recommendation, the Board commenced the work by holding the first meeting at Columbus, Bartholomew county. The second Institute was held in Crawfordsville, Montgomery county. Both of these meetings were well attended, and proved to be very interesting and instructive, and very encouraging for a continuation of the good work. The Board made an effort to locate and hold the other two Institutes in November and December, but were unable to do so, as the political campaign and other impediments prevented.

I would recommend the further holding of these Institutes during this year. I have no doubt but that the influence of these meetings will be direct and effective for good, by the association of farmers and the enthusiasm that may be awakened by lectures, discussions, and an interchange of experience and thought, and so be the means of increasing the knowledge and intelligence of agriculturists.

I desire at this time to impress upon you the importance of the Geological Department, a department originally created by the State Board of Agriculture, and for a number of years managed under the direction and control of this Board, and should continue to be so managed. I suggest that you give it your earnest thought, and I would recommend that steps be taken at once looking to the passage of an act by the General Assembly placing it under the direction and control of this Board, where it properly belongs.

In February last a communication was received from the Illinois State Board of Agriculture, requesting us to appoint one expert judge on improved breeds of fat cattle, to serve on committee at the Fat Stock Show, held in Chicago in November last, and also to send delegates to the same. After corresponding with several parties, we secured the services of Mr. Abraham Wolfe, of Fort Wayne, as such judge, who, I am pleased to know, gave entire satisfaction to the management. Your President, Secretary and two or three members attended the show, and were gratified to see so large and increasing interest manifested. The Indiana breeders of the north part of the State were well represented by fine specimens of the different breeds of cattle, hogs and sheep. As this is a show of national importance, and not of Illinois alone, I would suggest that you consider the propriety of offering a suitable premium for the best fat cattle exhibited at that show next November, from Indiana.

One year ago a committee was appointed to re-district the State; that committee have devoted time, labor and thought upon that duty, and will report at this meeting.

One of the most important and responsible duties, which you, as delegates from all parts of the State have to perform during this meeting, will be the election of eight members of this Board.

The Board is under lasting obligations to the Board of Trade, and other business men of Indianapolis, for their aid and influence during the past year.

I should be wanting in my duty as your President if I did not at this time express my gratitude to the Secretary, General Superintendent and all the members of the Board, for their kindness, support and encouragement.

Respectfully submitted,

L. B. CUSTER, President.

On motion, the address was referred to a special committee, consisting of Messrs. J. K. O'Neal, Dempsey Seybold and A. B. Claypool.

REPORT OF THE SECRETARY.

AGRICULTURAL ROOMS, December 31, 1882.

Gentlemen—I have the honor to submit herewith the annual report and financial exhibit of the business of the Indiana State Board of Agriculture, for the year ending December 31, 1882:

FINANCIAL EXHIBIT.

Total receipts from all sources	\$43,740 26
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Expenditures.

General cash orders	\$31,104 30
Premium cash orders	8,096 00
Balance in treasury	4,539 96
Total	<u>\$43,740 26</u>

1882.

Itemized Receipts.

Jan. 5. Cash in Treasury	\$12,460 69
Special appropriation State Treasury	4,000 00
Regular appropriation State Treasury	1,500 00
From State Fair 50 cent admission tickets	20,288 50
From State Fair 25 cent admission tickets	1,440 75
From State Fair 10 cent amphitheater tickets	631 10
From State Fair entry fees, speed	519 00
From State Fair, rents stalls and pens	554 00
From State Fair, sales of privileges	2,197 75
From old sheds, wood and pump	148 47
Total	<u>\$43,740 26</u>

STATEMENT SHOWING DISTRIBUTION OF EXPENSES.

General Expenses.

Members' per diem and mileage	\$1,506 76
Salaries of Secretary, Treasurer, and General Superintendent	1,449 00
Printing and advertising	1,010 57
Postage and stationery	252 95
Express, telegram and litigation, etc	201 03
Furniture and tools	42 65
Insurance	523 11
Claims paid of past years	120 10
Bonds canceled and interest account	16,696 46
Total	<u>\$21,802 63</u>

Construction and Repairs.

Lumber	\$3,116 98
Labor	1,783 74
Machinery	160 83
Roofing	148 08
Hardware	805 77
Pumps and repairs	80 40
Painting	200 00
Repairs in main hall	54 33
Total	<u>\$5,850 18</u>

Current Expenses, State Fair.

Gate keepers	\$202 00
Police	603 61
Ticket sellers	179 00
Labor, sweepers, engineers, etc	632 20
Award committees	186 75
Asst. Superintendents	271 50
Straw	185 00
Fuel	125 45
Gas	72 40
Music	208 00
Badges, ribbons, etc	73 50
Repairs	112 22
Sprinkling	45 00
Signs and lettering	32 96
Extras and supplies	77 98
Expenses and incidentals	32 25
Clocks	34 00
N. T. Association membership	56 00
Woman's Department	321 72
Total	<u>\$3,451 54</u>

Premium Awards.

Horses, Mules, etc	\$2,981 00
Cattle	1,888 00
Sheep	654 00
Hogs	630 00
Poultry	267 00
Total live stock	<u>\$6,420 00</u>
Agricultural—Grain, etc	\$353 00
Horticultural	730 00
Geology and Natural History	117 00
Total	<u>\$1,200 00</u>

Woman's Department	\$413 00
Children's Department	63 00
Total	<u>476 00</u>
Total Premium Awards	<u>\$8,096 00</u>

RECAPITULATION.

General Expenses	\$21,782 63
Construction and Repairs	5,850 13
Expenses of Fair	<u>3,451 54</u>
Total	<u>\$31,084 30</u>
Premium Awards	8,096 00
Balance in Treasury	<u>4,559 96</u>
Season's Operations	<u>\$43,740 26</u>

FINANCIAL EXHIBIT—STATE FAIR INCLUSIVE.

Receipts.

Admission tickets	\$21,729 25
Ampitheater tickets	631 10
Entry fees (speed)	519 00
Rents of stalls and pens	554 00
Rents of ground and privileges	<u>2,197 75</u>
Total	<u>\$25,631 10</u>

Expenditures.

Members per diem and mileage (season)	\$1,506 76
Salaries Secretary, Treasurer and General Superintendent	1,449 00
Printing and advertising	1,010 57
Postage and stationery	252 95
Expenses, telegrams, litigation, etc.	201 03
Current expenses, Fair	3,129 82
Woman's department	321 72
Twenty per cent. of construction account	1,168 38
Premium awards	<u>8,096 00</u>
Total	<u>\$17,136 23</u>
Net proceeds of Fair	<u>8,494 87</u>
Total	<u>\$25,631 10</u>

The above estimate is based on the calculation of twenty per cent. of the cost of improvement, as all of that outlay is for a class of building of permanent character, to be used for future Fairs. The additional eighty per cent. is in the nature of capital invested. To add all the cost of construction account the past season to this one Fair would reduce the net profit to \$4,420.17.

Insurance.

The insurance on the Fair ground buildings at present, is as follows:

On the Exposition building	\$28,500 00
On the stables, east side	800 00
On the stables north and west side	2,000 00
On the Amphitheater	1,500 00
On the agricultural implement hall	500 00
On the dwelling house	400 00
Total	<u>\$33,700 00</u>

The above insurance is divided among eighteen companies, at the rate of one and a quarter per cent. on the main building, one and a half per cent. on the stables and other buildings and one-half per cent. on the dwelling house.

GEOLOGICAL DEPARTMENT.

The expenses of this Department have been confined to placing the cabinet in a good condition, paid out of the surplus geological fund remaining in the treasury of the Board.

1882.

Receipts.

January. In treasury	<u>\$1,243 95</u>
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Disbursements.

Order No. 1. Cleaning and labeling cabinet	\$121 25
" " 2. New cases in center room.	300 00
" " 3. New cases in northeast room	300 00
" " 4 Refitting and shelving southeast room	200 00
	<u>921 25</u>
Balance in treasury.	<u>32- 70</u>
	<u>\$1,243 95</u>

The season of 1882 has been the most prosperous in the history of the Board. Fifteen thousand dollars of the outstanding six per cent. bonds of the Board have been redeemed since our last report, thus making \$20,000 of the indebtedness cancelled within two years, leaving \$40,000 of the six per cent. bonds unpaid, due in four years, but subject to call by verbal agreement. The appropriation by the Legislature for the use of the Board has greatly assisted in relieving the indebtedness.

The published reports of the Board for 1881 have been very favorably received, and, judging from the demand, a few thousand more copies of our annual reports could be used to advantage.

The co-operation of the State industrial associations with the Board has been attended with much good, especially in stock breeding, and the prospect is for an increased interest in that direction by mutual arrangement, and joint meetings in separate sessions.

We hope for an improvement in the annual reports from the agricultural societies in the State, delivered at this meeting, as inducements are held out for that purpose.*

The business of the office continues to increase. About two thousand letters and as many postal cards have been sent out. The advertising matter almost doubled, and some of it imitated by other States. And in this connection, at the risk of egotism, we can name several new features in the management of our business affairs which have been proved to be models for other organizations.

The Farmers' Institutes held last winter under the auspices of the Board were successful as to the lectures, but not in the attendance, as expected. The two Institutes ordered to be held the forepart of this winter were abandoned, by the advice of those interested, for several reasons. The Societies in the localities applied to, asked to be excused on account of political excitement, at the time for making arrangements in advance, and the refusal of our lecturers to respond.

We have been placed under obligations to the Indianapolis Board of Trade for the kindly assistance in securing low excursion rates to the State Fair and working up exhibits, and to the railroads for extended favors; also, to the indispensable aid from the newspapers of the city and State, and the liberal assistance from the express companies in advertising.

The labor of the office has been lightened by the kindly encouragement of my associates.

Respectfully submitted,

ALEX. HERON, Secretary.

TREASURER'S REPORT.

GENTLEMEN—I have the honor to submit my report as Treasurer of the State Board of Agriculture of Indiana, for the year ending December 31, 1882:

Receipts.

To cash on hand January 1, 1882	\$12,460 69
To State appropriation for 1882	1,500 00
To appropriation from State to pay interest	4,000 00
To amount from Woman's Department	35 00
To 49,735 fifty cent tickets	24,867 50
To 9,543 twenty-five cent tickets	2,385 75
To 2,787 railroad coupon tickets	1,393 50
To 202 McCormick tickets	101 00
To amount from Secretary, Superintendent, rent, entry-fees, and all other sources	4,400 62
Total	<u>\$51,144 06</u>

*We omit reference to the general features of the annual State Fair, presuming it will be given in detail by the Department Superintendents, as heretofore.

Disbursements.

By amount paid on general orders	\$31,024 62
By amount paid on premium orders	8,106 00
By amount of tickets returned	7,404 05
By amount of cash on hand	4,609 39
Total	<u>\$51,144 06</u>

Respectfully submitted,

J. A. WILDMAN, *Treasurer.*

GENERAL SUPERINTENDENT'S REPORT.

Mr. President and Members of the Indiana State Board of Agriculture:

I feel that yourselves and all friends of the agricultural and industrial interests of the State have reason to be well pleased with the results of the past year, and the improved condition and future prospects of the interests with the management of which you have charge.

In addition to the great reduction of the debt of the Board, extensive and durable improvements have been made during the past season. On the north line of your grounds the dilapidated fence and frame work dignified with the name of horse stalls have been demolished, and in their place a line of neat and substantial stalls erected, 185 in number, with offices for the Superintendent of the department and his assistants. The ground or floor line of the stalls graded above the outside ground, and stalls roofed with first-class pine shingles.

The substitute for fence and hog pens on the west has also been removed, and in their place first-class cattle stalls, to the number of 148, erected, with offices for Superintendents, and graded and roofed in the same manner as the horse stalls.

The bridge across the ditch at the north end of the grounds, and the one inside the grounds near the southwest corner, have been rebuilt.

The fence from the southwest corner of the main building west to the corner of the grounds, rebuilt and set south to the line of the railroad track, thus adding considerable to our room where much needed. The bridge outside the grounds, near the southwest corner, was abandoned for the use of vehicles and used only for street cars and pedestrians, and a new bridge built near the northeast corner of the main building, greatly adding to the facility of vehicles reaching the front of the building and passing away again, and preventing the usual jam and confusion during the times of greatest attendance.

The towers of the main building having become quite leaky, were re-roofed last spring. The wood work of the deck, the front cornice, door and window frames and sash have been repainted. Also, various changes and improvements made, which I deem unnecessary to especially refer to.

As to the magnitude and general success of the Fair, you have heard from the President, and will hear specially of the different departments from the superintending members of the same.

In this connection, permit me to suggest that members superintending the different departments should be on the ground the first preparation day, and take charge and remain till the close of the Fair. They will thus become acquainted with their exhibitors, and conversant with their wishes and wants, and be the better enabled to satisfy them.

As the success of fairs depends on good and full exhibitions, and as exhibitors are generally at heavy expense in making their exhibits, especially exhibitors of live stock; and as stall and pen rents make a considerable item in that expense, I would suggest that a percentage of that rent be returned in admission tickets for the admission of the exhibitor and his necessary assistants and care-takers; in no case, however, to exceed a number sufficient for a reasonable number of admissions for the help necessarily employed.

In accordance with an order of the Board, passed near the close of the last fair, I have disposed of the old sheep and hog pens and cattle stalls, and they have been removed from the ground. As I have received no satisfactory proposition for the horse stalls, near the northwest corner, I have left them standing. With some repairs they may be made to answer for a year or two more, but it would add greatly to the symmetry and general appearance of the grounds if they were removed and replaced with new ones. It is now absolutely necessary that new sheep and hog pens be built, and quite a number of new cattle stalls will, from the experience of the past year and the prospects of the future, be needed for the next Fair. This subject, the plans of construction, etc., should receive the careful consideration of your Committee on Grounds and suggestions of other members.

As the receipts and expenditures of my department appear in the reports of the Secretary and Treasurer, I deem it unnecessary to recapitulate them here, and trust they will be found satisfactory.

Respectfully submitted,

FIELDING BEELER,

General Superintendent.

Each of the above reports were referred to the Committee on Finance.

REPORTS FROM DEPARTMENTS.

HORSE DEPARTMENT.

W. A. BANKS, SUPERINTENDENT.

To the President and Members of the State and Delegate Board of Agriculture of Indiana:

GENTLEMEN—In submitting this, my report of the Horse Department, I have the gratifying privilege of saying the show of horses was good, large and satisfactory.

Book 1, Heavy Draft.—Fifty-five entries against forty-eight last year, and a splendid show, consisting of Clydesdales, Normans and English Draft, and their crosses. Some very fine specimens of the draft horse were shown, and all, I believe, from Indiana. It is very gratifying to find our own State advancing in importing and improving of this most needed class of horses.

Book 2, General Purpose.—Seventy-five entries, against eighty-six last year. The show was very fine. Some excellent specimens of general purpose horses, and several imported horses, from England, were exhibited in this class. The competition was so close that the committee were required to take a good deal of time, but went through their work well, and gave general satisfaction.

Book 3, Light Harness.—Forty-seven entries, against fifty-five last year. A good show of driving horses, both single and double. Some splendid matched teams, that added vastly to the admirable show in this class.

Book 4, Speed.—Forty-one entries, against thirty-six last year. Some of the trotting and pacing was very good, but not what it should be, and I am sorry to have to report that nearly every race had to be made up on the day of race, and not filled according to rule, which is very annoying to a superintendent. Some plan should be adopted to prevent the necessity of allowing sham races.

Book 5, Saddle Horses.—Five entries against ten last year. While the exhibit was small it made up in quality.

Book 6, Sweepstakes.—Fifty-five entries against fifty-eight last year. The show in this class was very large and good, and the awarding in this class did not give satisfaction to the exhibitors and horsemen in general, and there should be more care taken, and a better plan adopted, or else the classes divided, as it is impossible for a committee of three (especially as there are three classes of horses, and the committee all favorites of one class) to give satisfaction.

Book 7, Jacks and Jennetts.—Nineteen entries against thirteen last year and Book 8, sweepstakes on same, thirteen entries against eight last year, making a total of all entries in the Horse Department of 310, against 314 last year.

The display was large and good, and a credit to any State. The committees, with one or two exceptions, did their work well and gave satisfaction, and worked early and late to get through with their work, and were men of good judgment, and conscientious, and deserve credit. The courtesy of the committee and the fairness of the exhibitors, made it very pleasant for the Superintendent.

While the new stalls are an ornament to the grounds, and a great credit to the officers in charge who built them, they are, in my judgment, not yet finished. I would recommend that there be doors to all of them, and to obviate the disadvantage of not allowing visitors to view and inspect the stock while in stalls, I would advise double, or half doors, so that the upper half could be left open, say after nine o'clock, A. M. To convince any one who objects to doors, I want to call their attention to the fact that every old shed or stall on the ground was filled, and at the same price that was charged for new ones, and parties offered as high as five dollars for stalls on the east side of the grounds, and not over one-half of the new stalls were taken, or, if taken, given up. No person having a valuable horse will run the risk of leaving it in an open stall.

I would also recommend that the programme be so arranged that the committee will have more time to examine stock, and be better enabled to give just decisions. Will it not be better to have one good trot, or pace, or running race, in an afternoon, than two or three poor ones? I would recommend changing the sweep-stake class, or adding two more judges, making five, instead of three, and have them selected earlier, and men suitable for such an important position.

CATTLE DEPARTMENT.

S. R. QUICK, SUPERINTENDENT.

The exhibition in this department for 1882, was creditable; I might say as good as ever was in Indiana, good in numbers as well as quality. Probably the best in quality that ever was shown in the State.

In Short Horns there were 65 entries. There were from Indiana, 33 entries; Illinois, 30 entries; Kentucky, 2 entries.

In Jerseys there were 99 entries, all from Indiana.

In Devons, 18 entries, all from Ohio.

In Ayreshires, 14 entries, all from Ohio.

And in fatted cattle, 5 entries, all of Indiana.

Total number of entries, 201, and 134 of those entries being by Indiana's men, shows that our State is alive to its own interest.

The best of feeling prevailed among the exhibitors, generally speaking. Committees did their work faithfully, and, I think, impartially, and combined with the most excellent weather, with which we were favored, made the exhibition in my department one of pleasure, and, I think, of profit to all concerned. The exhibitors from our sister States went away well pleased, and said they expected to be with us again the coming year. Although they did not succeed in carrying away all the premiums, as they did in some places, they got what premiums the committee said were theirs.

There seems to be a growing interest in the cattle stock of the State, and great efforts are being made by breeders to secure the best in form and blood that are to be found.

Enterprising gentlemen are expending much time and money in getting the best selections to be found in Europe and America, and the stock is evidently showing the effects produced by this laudable work.

SHEEP DEPARTMENT.

S. W. DUNGAN, SUPERINTENDENT.

We hope it will not be considered an exaggeration on our part, when we say that the sheep show of our late State Fair exceeded in numbers, and far surpassed in attractiveness and excellence of quality any former exhibition.

The pens, including the four large round houses, were all full, and we thought on Tuesday that we would have to build new ones, but with a little crowding, we succeeded in accommodating all without incurring this expense.

The various breeds and classes were well represented. Of Long-wools, including Cotswolds, Lincolns and Leicesters, there were two hundred and ten head; Middle-wools, including South Downs, Shropshires and Oxfords, one hundred and seventy-two; Fine Wools, including French and Spanish Merinoes, seventy-four, making a grand total of four hundred and fifty-six head. Of this number, eighty-two were from Ohio, one hundred and seventy from Kentucky, one hundred and fifty-seven from Indiana, nineteen from Illinois, and twenty-eight from Canada. Quite a number of sheep in the Middle and Long-wool classes were recently imported from the best and most noted flocks in England, and we have no hesitancy in saying that the sweepstake shows, comprising flocks and sheep of all ages, was the largest and grandest ever witnessed at the Indianapolis fair grounds. This is readily explained: At our Board meeting in February last, the premiums in the Sheep Department (as in others) were materially increased, and the department also revised, adding new classes and rings, hence the increase in number and quality.

Said a prominent sheep exhibitor to me (at the Louisville Fair last fall): "Your premium list in the Sheep Department is the best arranged and most complete I have seen anywhere." There is one thing I observed in my department, and I believe it is not uncommon at fairs. That is this: A timid class of exhibitors enter their stock, but if after looking through and going the rounds they chance to see something with which they *think* they can not successfully compete, "a change comes over the spirit of their dreams," and they conclude they are not in the show business, and hence refuse to trot out their stock when called to the ring. Now, this often causes delay in exhibitions, incurs the displeasure of the Department Superintendent, and detracts materially from the show ring. "Competition is said to be the life of trade." It is certainly the life of a fair. We would, therefore, recommend the adoption of some measure making it obligatory on those who enter their stock at our fairs to show them.

We introduced the one judge, expert system in our department, with very satisfactory results. All the classes, excepting long wools and Book 23 of Downs and fine wools, were passed on by one man, and was attended with much less labor to me, much less expense and annoyance to the Board, and gave much better satisfaction to exhibitors than the old plan. Said a number of exhibitors to me (some of whom had not received much encouragement in the way of premiums): "We are very much pleased with your expert judge. He is honest, critical and competent, and that is all we want."

Believing that this system is practicable, and far preferable to the one generally adopted, we unhesitatingly recommend to the Board its adoption in every department of our State Fair, and we hope it will not be considered presumption on our part in recommending this system to the favorable consideration of the representatives of county and district fairs comprising the Delegate Board.

We, doubtless, voice the sentiments of all present who have had experience in

the management of agricultural societies, when we say that the most prolific source of dissatisfaction at our fairs is the incompetency of awarding committees.

In conclusion, we desire to acknowledge our obligations to our Secretary, General Superintendent, and their obliging assistants, for many favors during the Fair, and would also tender our thanks to the numerous exhibitors in our department, for their uniform kindness and courtesey, for we are glad to be able to say that the best of feeling and utmost harmony prevailed during the entire week, and that every ring was called and exhibited agreeable to the printed programme in our "Premium List."

SWINE DEPARTMENT.

T. M. KIRKPATRICK, SUPERINTENDENT.

The Hog Department was well represented by the finest lot of hogs, perhaps, ever shown on the fair grounds. Exhibitors and committee-men all did their part well, so that we all felt happy after we got through with our work. The hog product is of greater commercial value to the farmers of Indiana than any other single interest. The best is generally considered the cheapest, so it would seem to be to the interest of all to raise the best, hence the advantage of our fairs. So that we may know where to get the stock that will yield the best profit; in order that all may know who read our reports, I will here give the address of some of the principal exhibitors of Poland-China hogs:

E. & J. M. Klever	Bloomingsburg, Ohio.
Mugg & Leagrave.	Center, Howard county, Ind.
Whiteside & Webb	Franklin, Ind.
W. C. Williams.	Knightstown, Ind.
E. E. Elliott	Knightstown, Ind.
A. W. Ross	Muncie, Ind.
J. A. Heavenridge	Liberty, Ind.
W. A. Robins	Greensburg, Ind.
A. S. Gilmore & Co	Greensburg, Ind.
A. W. Martin	Muncie, Ind.

There was a fine lot of Berkshires exhibited by Keck & Rawell, of Waldron, and also by I. N. Barker and James Riley, both of Thorntown, Ind. W. A. Maze, Sharpville, Ind., Suffolks; R. S. Russell, Zionsville, Ind., Chester Whites; Ewin York, Brock, Ohio, Chester Whites.

Not being able to attend to all the wants of the department myself, I employed Mr. Frank Pitzer, one of our best breeders of hogs, to assist in the work.

POULTRY DEPARTMENT.

T. W. W. SUNMAN, SUPERINTENDENT.

In this department the show was all we could wish for, and the State Poultry Association, who assisted in the management, expressed themselves as highly pleased.

with the exhibit which included every variety of fowls, from the mammoth Turkey to the mite of a Bantam. The premium list was increased some thirty per cent. over the list of 1881. I consider that the Poultry show at the State Fair of 1882, was a grand success, and feel confident, from the expression of exhibitors, that the exhibit of 1883, will excel any previous exhibition.

AGRICULTURAL DEPARTMENT.

GRAIN, ETC.

J. K. O'NEAL, SUPERINTENDENT.

MR. PRESIDENT—As Superintendent of the Agricultural Department, I have the honor to submit the following report:

The display was unusually complete in all the varied products pertaining to it. The most marked improvement noticeable was in potatoes, many new varieties of great excellence being brought to public notice for the first time. There is nothing that cultivation has done more for than this universally esteemed edible, and yet improvement goes on. I deem it unfortunate that the Agricultural Department was moved to the Exposition Building. The noise and confusion (unavoidable in the building) make it impossible to do justice to exhibitors, and, also, for visitors to make such careful examination as their interest and desire dictate. I earnestly recommend that the department be placed back where it was last year, or in a building similar to it. Much is due for the universally acknowledged success of the display to the indefatigable labors of James Youndt.

MECHANICAL DEPARTMENT.

R. M. LOCKHART AND SAMUEL HARGROVE, SUPERINTENDENTS.

As Superintendents of the Mechanical Department, we beg leave to make the following report:

Arriving on the grounds on Saturday preceding the Fair, we found everything in this department in good shape, and under the management of Mr. Charles Merrifield, who had been secured to take charge in the absence of the Superintendents; and must say that we found him to be the right man in the right place. He had everything in running order, space allotted, and much of it occupied by that time.

The display in this department was very good, and so much better than any show before had on the ground, that we were very much perplexed to find space for exhibitors as they arrived with their loads of articles for exhibition. In a word, the show was too big for the amount of space.

The show of traction engines was very fine, and was a special attraction at our

exhibition. I would suggest there be a space inclosed in which to move and show traction engines, so as to avoid endangering the lives of spectators, as was the case at the last Fair.

There needs to be some new plan or mode of providing admission tickets for exhibitors and their assistants in this department.

CARRIAGES, WAGONS AND FURNITURE.

JOHN P. BARNES, SUPERINTENDENT.

During the last Fair, held at Indianapolis, September 25th to 30th, 1882, the book H was added to my department after the Fair began.

I did not comprehend the magnitude of the work in this department; neither could any one comprehend the extent by looking at entry books G and H. One would think he was going to have an easy time during the Fair; but I found myself disappointed, as there were so many articles placed in my charge that the books did not mention, that all my time was taken up in looking after the exhibitors in my department. I had next to the largest department in my care, and employed no assistance. I had about one hundred exhibitors in the two books, and think if the exhibits had shown for *cash premiums*, it would have cost the Board a sum not less than one thousand or twelve hundred dollars. While under the system of issuing tickets to the exhibitor that brought a display that filled the building down stairs and fully two-thirds of the upstairs, making as good a display as has ever been seen in the building since the first year after it was built. And this has only cost, outside of the help employed, the use of 782 tickets—equal to \$391, at the rate they were sold at (50 cents each). This showed that the use of tickets is the cheapest way to fill the building with a good display, as it does not cost over 35 per cent. of the amount required to pay cash premiums. Besides, the exhibitors would rather make their display for our diplomas and free admittance than exhibit for cash premiums, as their object is to advertise.

My department had not been well arranged, as a part of the display in Book G was out of doors. This caused some trouble, both to myself and the exhibitors. I found my friend Samuel Hargrove in the same dilemma, as a portion of his were in the house and a part on the grounds. To bring all this trouble to a close, Hargrove and myself made some changes in our departments, as follows: I gave him all in my department that was on the *outside* of the building, and then released him from all trouble *inside*. This could have been done in the first place by not allowing part of a book or class to be displayed in the house and part on the grounds. In arranging the classes for exhibition in the future, this should be looked after carefully and avoided.

It is true that a man has to have a few years of experience before he is of much use to the Board in arranging articles to show to the best advantage, and when that is done the exhibitor is, or should be, pleased, and always is, if you can convince him you have given him the best location in the house. This can be done in all

cases, if the Superintendent of space understands himself. I think the different Superintendents of the departments in the building should be present at least from one to three days before opening the Fair proper, as they would become better acquainted with those who are to exhibit in his department, and better understand their wants. I think there could be some better plan devised for issuing passes to exhibitors that are entitled to them, and some more accurate plan of determining the number of passes due to any one exhibit. There seems to be a disposition of some to want a surplus of passes to accommodate their friends. I found considerable trouble in this direction. And I also found another class of exhibitors who had some one article not worth more than from twenty-five cents to fifteen and twenty dollars, and they were more trouble to regulate than those who had goods in value to entitle them to passes under our rules. However, I had every reason to suppose that nearly all in my department were satisfied with my rulings. Having found the place a hard one to fill, I hope in the future you will be able to find a man who has more ability to fill the place than the writer of this.

TEXTILE FABRICS.

MARY E. HAGGART, SUPERINTENDENT.

The entries made in the Woman's Department for the exhibit of 1882, were as follows:

Book 41	104
Book 42	144
Book 43	63
Book 44	208
Book 45	73
Book 46-i	149
Book 46-ii	44
Book 46-iii	15
Book 47	1
Book 48	151
Book 49	128

Making the total number of entries 1,076

Being ninety-six over the number made last year, and this too, under the strict enforcement of a rule adopted by our Board, excluding all articles which had hitherto drawn two or more premiums.

Premiums offered in regular list were	\$668 00
In special list	213 00

Making the total number of premiums offered \$881 00

Premiums paid out were, in children's Department	\$63 00
In Woman's Department	413 00

Making a total in premiums paid out	\$476 00
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Diplomas granted were five in number.

Expenses of this department were, for Superintendents, special premium soliciting, carpenter's work, porters and miscellaneous labor	\$205 25
For awarding committees	31 00
For supplies	10 47
For rent of show cases	75 00

Making, in all, a total expense of	\$321 72
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This expense, added to the whole amount of premiums paid out, makes in all, \$797.72, that has been used out of the one thousand dollars appropriated by the State Board for payment of premiums and current expenses in the Woman's Department for 1882. The earnings of this department were \$35.00.

Regarding the character, the extent and superior quality of the exhibit of this Department, I will briefly and emphatically state, that it far surpassed any former exhibit of the kind ever made in Indiana. This opinion was the universal verdict of our Superintendents, our awarding committees, and of the thousands of visitors who thronged our Department during the time of exhibition.

FRUIT DEPARTMENT.

JOSEPH GILBERT, SUPERINTENDENT.

The Horticultural Department, at the last Fair, was divided up; vegetables were located with the grains; flowers were in one class and fruits in another, which I believe to be a mistake. All the garden products should be exhibited together or side by side, especially fruits and flowers. The place where they are exhibited should be roomy, free from noise and dust, ornamented by walks, fountains, waterfalls, and decorations, supplied with seats and good music; in fact, making a delightful place without the exhibit itself. Owing to the general failure of the apple crop in a large portion of the State, a slim show was anticipated, and limited preparations made. However, the allotted space was all filled, and a very creditable display made. Only two entries were made for the general display by local societies, one from Hendricks and one from Lawrence township, Marion county. It is hoped that next year this premium will be competed for by a much larger number of societies.

A new feature was the premiums offered for plates of several named varieties of apples. It brought the growers in direct competition, and enabled persons having but few trees to compete with those having large orchards. This feature should be continued and extended to other varieties of fruits: pears, peaches, grapes, etc.

Melons were this year placed among the fruits, where they rightfully belong. The display was very good. Extra inducements should be offered, for melon-growing is becoming a large and important industry in several parts of the State.

Fine exhibits were made of two new varieties of white grapes—the Niagara and Prentiss—grown in the State of New York. They were large, compact bunches, of good quality, and are very promising varieties.

Many of the fruits of the State, early apples, strawberries, raspberries, blackberries, currants, cherries, etc., ripen at other seasons of the year, and can not be exhibited at the State Fair. Special exhibits of them in their seasons should be made by aid extended from the State Board, but under the auspices of the State Horticultural Society or some of the local societies.

POWER HALL AND ENGINES.

Mr. Seward, Superintendent of the Power Hall, made the following verbal report:

“The amount of machinery exhibited exceeded that of former years, and we were unable to furnish sufficient space and power for all applications. I would be glad if we could in the future have greater facilities. This department is visited largely from year to year and must be a benefit to all who see it. I will say, however, that all who visited our fair seemed pleased with the exhibition.”

GATES.

Mr. Mitchell, Superintendent of the Gate Department, made the following verbal report:

“We have never found a better plan for conducting this department than we have at present. I have nothing specially to report.”

AMPHITHEATER.

Mr. Hancock, Superintendent of the Amphitheater, made the following verbal report:

“There was hardly sufficient room the two last days of the Fair. It is my opinion that the building should be enlarged, and add at least one-third more seats.”

FLORAL DEPARTMENT.

W. H. RAGAN, SUPERINTENDENT.

This has, perhaps, been the first year in the History of Indiana State Fairs, that the Department of Horticulture has been sub-divided into two sections, viz.:

The Department of Pomology and the Floral Department. This innovation, if I may be permitted to call it such, is the creation of the late President, Hon. H. C. Meredith, who doubtless was right in providing for an exhibition so dissimilar, though nearly related, as are these separate interests. Under this regime, I was assigned the care of the Department of Plants and Flowers.

To those of you who know something of the management of fairs, I need not say that this is a department on which much of the success of an exhibition depends, and yet that it is a department difficult and delicate to handle.

Like music, there is much in plants and flowers to "charm the soul," yet the "green eyed monster, jealousy" sometimes dwells with those engaged as producers, dealers or exhibitors of Flora's beautiful offerings.

But it will not do for the utilitarian interest to try to ignore the importance of a good floral and plant display at a fair, notwithstanding it requires, what might seem to such, unwarrantably large premiums. I, therefore, hope that the policy of this Board may ever be liberal toward this interest, since no reputable florist can afford to compete for what might seem to some to be liberal prizes, nor can they risk their frail and tender wares in insecure buildings, neither can they afford to submit the awarding of prizes to incompetent judges. In order, therefore, to keep up and improve this attractive feature of our fairs, we must offer liberal premiums; we must provide safe and commodious buildings for the same, and, if possible, secure the services of competent and honest committeemen.

THE FAIR OF 1882.

Early in the year just closing, a general dissatisfaction among the florists, on whom much depended for the success of the department of the late State Fair, manifested itself. This was partly the result of causes above indicated, though no doubt largely due to a disposition to criticise the action of the Board in adopting the schedule of prizes offered and the terms governing the same.

For a time I despaired of having a creditable exhibit, though, as the time approached, and it became generally known that the distinguished florist, James Vick, of Rochester, New York, would be present with a large collection of cut flowers, the local florists began to prepare themselves for the contest.

The result was, instead of a failure we had the *grandest display* of cut flowers and floral designs ever made at a State Fair.

In addition to James Vick, who had over seventy feet of table room and a similar amount of wall space handsomely filled with cut flowers and designs of exquisite beauty, which collection, though eminently deserving, was, through the liberality of the proprietor, not in competition, Thomas Lewis and Reiman Brothers, of this city, were represented by large and handsome displays, chiefly of designs, though each exhibited some of their choicest specimen plants, stands and baskets. Mr. Lange, also, exhibited funeral designs. The amateur department of the exhibition was not so good as usual, Mrs. Dr. Rogers, of Greencastle, and Mrs. Danley, of Indianapolis, only being represented, each, however, with creditable displays.

The President appointed the following named gentlemen from the delegates, to act in conjunction with the regular standing committees, as follows :

On Finance—Messrs. Robert Mitchell, W. B. Seward and J. K. O'Neal of the Board, and Messrs. Webb and Ganutt of the Delegates.

On Rules and Regulations—Messrs. Lockhart, Quick and Kirkpatrick of the Board, and Messrs. Hamilton and Davidson of the Delegates.

On Fair Grounds—Messrs. Ragan, Barna and Dungan of the Board, and Messrs. Cockrum and Brown of the Delegates.

On Premium List—Messrs. O'Neal, Gilbert and Banks of the Board, and Messrs. Blessing and McClung of the Delegates.

On Unfinished Business—Messrs. Hancock, T. W. W. Sunman and Hargrove of Board, and Messrs. McWilliams and Howard of the Delegates.

Geology and Natural History—Messrs. Mitchell, Seward and O'Neal of the Board, and Messrs. Graham and Cobb of the Delegates.

Governor Porter was then introduced by the President, and delivered his address :

GOVERNOR PORTER'S ADDRESS.

Gentlemen.—I have never been more surprised than I was this morning when I saw it announced that I was appointed to deliver an address to you to-day. If I ever entered into an engagement of the sort—and I do not deny that I may have done so—I have forgotten all about it. It is your good fortune, however, that I am not prepared to speak, for I thus have an excuse for turning over the business of addressing you to a gentleman happily here to-day, whose experience and studies highly qualify him for the undertaking. I refer to Dr. Loring, the United States Commissioner of Agriculture.

I have heard many farmers say that there ought to be in the Cabinet of the President a minister peculiarly a representative of our great agricultural interests. There is a general recognition of the fact that the gentleman who now fills the office of Commissioner is, by capacity and qualifications, specially fit to be such a minister.

I am glad to perceive here to-day the eager interest which seems to be felt in the proceedings of this, your annual meeting. If a tongue could be given to the expression of interest visible on your faces, we should have from it one of the best of speeches.

I beg to remind you of my readiness to give the prize for the best county report, which I offered at your last annual meeting.

I now have the pleasure of introducing to you Dr. Loring, United States Commissioner of Agriculture.

Dr. Geo. B. Loring, the United States Commissioner of Agriculture, of Washington, D. C., being present on invitation, then spoke as follows:

ADDRESS OF DR. LORING.

Mr. President, Ladies and Gentlemen:

I, too, am very much surprised to find myself introduced here as a substitute in this controversy. His Excellency, the Governor, I knew was practically well skilled in all the essentials of diplomatic detail, not having the slightest idea that he was gathering his forces so well as to introduce me here upon this occasion. I have no idea of inflicting on the farmers of this State a dull and heavy essay this evening or to-day. I have come to meet you for the purpose of learning from you. I have no idea of overloading your minds to-night. It is practically evident that you are here for business. I can tell you nothing about the agricultural interests of this State. It would be idle for me, coming from the State of Massachusetts, where the climate is hard and severe, to attempt to teach you anything in regard to the most profitable breed of horses and cattle for the American market. We can not, in Massachusetts, raise a really representative crop of corn or wheat. You would think it preposterous if I should come here to tell you the best method of planting, of fertilizing, of gathering or marketing your grain, and which is the most important crop for Indiana to grow. You would not expect to have me teach you how to raise wheat here, or how to feed and market your hogs. I began once on my own farm with one thousand pounds of hogs, and in a short time I had them reduced down to two hundred and fifty pounds. I want you to teach me something about the great hog crop. [Applause.] It may be interesting to you to state what we are doing in Massachusetts for the encouragement of agriculture there, and what we are trying to do in Washington for the benefit of agriculture in this country and in Europe. In Massachusetts we don't raise our own corn, or wheat, or oats, or potatoes, or apples, or butter, or cheese. We buy those articles. We do not raise field crops enough for our support. We turn our attention more to manufacturing, and depend upon the great Northwest for our supplies. Notwithstanding that the general farm crops have greatly declined in our State, how is it that farmers paint their houses as they do, living in the height of style? How is it I meet them out on the road, going into market by sunrise with their loaded wagons? How do those men pay their taxes, and have their boys attend school and get a good education? It is done by raising onions by the hundreds and thousands of bushels, large crops of cabbages and other vegetables. Enormous quantities of sweet corn are also raised, yielding as much as \$100 per acre. When you are told that farming is on the decline in Massachusetts, you can take this statement and see at once that manufacturing is the great industry of the State. While there are great mills at Lowell, Worcester and other places that are growing up it shows at once that this industry is occupying the attention of the people of our State, just as the great

farming interests are occupying yours here. Think of a 1,200, 1,500 or 2,000 acre farm. It has an enormous fascination. It reminds me of a man who came into my twenty-five acre field where I was cutting grass. I thought it was the biggest field in the world. He came up to where I was standing in the field, looking on, and said: "I call this noble to stand upon this vast area and witness this important branch of agriculture going on." That is the feeling of every man there. Those broad acres and vast prairies of this fertile country are more enticing than the cotton mill, or any other mill. In that State farming is conducted as I have told you, and all the suggestions of the Governor are carried out. Everything in our State is done of necessity. We can not get along without it. Massachusetts is a kind of preacher of agriculture. It is pledged to stand by the industries of the State, and it does do it, and all the departments are working nicely. Governor Porter has been pleased to say that the Commissioner of Agriculture should hold a place in the President's Cabinet, and it is a thing which the people are justly entitled to. The agriculture of this country is just as important as the army or navy, and no one doubts the question. Of all the vast industries, from the Atlantic to the Pacific, the Agricultural Department is one of the most important. While vast appropriations are made for the Coast Survey, Signal Service and for the increase of a supply of fish food in this country, I think the Agricultural Department is entitled to an endowment in proportion to the importance and power of the department, and I am not sure but that it is entitled to a Cabinet position. I think if Congress would say to this country that it would give to the Agricultural Department all the money the Commissioner wanted to develop the resources of this country, that he could afford to take that money and apply it judiciously to the interest of this great industrial enterprise and let political distinction go. Let me say here that I have been accused by some of the newspapers with having wanted to get into the President's Cabinet. But it is not the case. I have only been desirous to place this Department where it would stand and represent the agricultural interests of this country to the best advantage. Since I have held the position of Commissioner of Agriculture I have endeavored to investigate the sorghum question, and have tried to investigate it fairly as a business man; I have tried to put it on the same footing with the great cotton and woolen interests. Practically I have endeavored in every way to give an analysis of it. Such men as Prof. Wiley and Prof. Dodge are making investigations on this subject, and I am going to appeal to them for aid in this work. Then we have the Department of Statistics, which gives a great deal of valuable information. I have a statistician in London, who sends me every week by mail and cable, and his information is valuable. I have men in different parts of this country, who are aiding me materially in that direction. I have sent a man to California to tell me what is raised there; another to Florida to tell us what that State can raise, and some in other parts of our country looking after the various interests. In my brief discourse I have told you about the agricultural interests of Massachusetts, and a little of what I am doing in the Department at Washington. I am happy to see so many here to-day, and I think, with the Governor, that this meeting speaks well for the farmers of Indiana. I have been astonished with the agricultural wealth of the West, as much as you would be at

the industrial wealth invested in the mills at Lawrence, Lowell and Worcester were you to visit those places. You have this vast agricultural wealth in your own hands, and I congratulate myself on the increasing interest which is daily becoming apparent. I thank you, gentlemen, for the attention you have paid me.

The following were the nominations made to fill the places of the members of the Board whose terms expire with this meeting:

Fifth District—T. W. W. Sunman.

Sixth District—S. R. Quick, Bartholomew county; W. H. Hamilton, Decatur county; John McGuire and Dick Jones, Bartholomew county.

Eighth District—Joseph Gilbert, Vigo county.

Ninth District—W. H. Ragan, Hendricks county; J. W. Robe, Putnam county, and N. Davidson, Montgomery county.

Tenth District—L. L. Lawrence, Wayne county; George Young and W. W. Cotteral, Henry county.

Eleventh District—John M. Graham, Delaware county; J. P. Barnes and Capt. Nelson Pegg, Madison county; Samuel M. Smith, Hamilton county.

Twelfth District—Henry La Tourette, Fountain county; James Goodwin, Warren county.

Thirteenth District—T. M. Kirkpatrick, Howard county; John Ratliff, Grant county.

The Board then adjourned until 7:30 o'clock P. M. to hear the address of Dr. Geo. B. Loring, the United States Commissioner of Agriculture, at Park Theater building, and to meet at their rooms to-morrow, according to programme.

Board met at Park Theater at 7:30 P. M., when, as per programme, Dr. Geo. B. Loring delivered his address, which on motion was requested for publication, and thanks of the Board returned therefor.

The address by Dr. Loring will be found elsewhere in this book, published in full.

SECOND DAY.

MORNING SESSION.

WEDNESDAY, Jan. 3, 1883, 8:30 o'clock A. M.

Board met pursuant to adjournment, President Custer in the chair; all members present, and delegates responded as yesterday.

Mr. Mitchell, from the Finance Committee, reported as follows:

Your Committee, to whom was referred the accounts of Secretary and Treasurer, would report that we have examined the said accounts and find them correct, and that the books have been carefully kept.

ROBERT MITCHELL,
J. K. O'NEAL,
W. B. SEWARD,
D. WEBB,
J. A. GANUTT,
Committee.

The report was accepted.

Mr. Lockhart, from the Committee on Rules and Regulations, reported as follows, which was adopted:

Your committee would respectfully report that they have examined the Rules and Regulations as adopted for the year next after the Fair of 1882, and would suggest the following changes:

Change the date of Fair of 1883, to commence September 24, 1883.

Rule first, change rents of stalls to read as follows:

Horse stalls, single	\$2 00
Horse stalls, double	4 00
Cattle stalls	1 00
Sheep and hog pens, each	50

Rule fourth, add as follows: A card must be attached to each stall, giving name of animal and owner's name.

Respectfully,

R. M. LOCKHART,
Chairman.

Committee on Fair Grounds asked for further time.
Granted.

Mr. O'Neal from the Committee on Premium List reported :

In the class of heavy draft horses, that there be a premium offered for grades, and recommend that sweep-stakes be divided into three classes, premium the same on each, and the premium on breeding, breeds and herds of cattle be increased to three premiums.

First premium	\$500 00
Second premium	200 00
Third premium	100 00

And that on the milk herd :

First premium	\$200 00
Second premium	100 00

That the premium on Leicester and Cotswold be stricken out and added to other classes, and in Book 26 the word "other" to large breeds be added.

DISCUSSION.

Mr. Mitchell. I think this committee should have been instructed to strike out everything on polled cattle, or say poll alone, and breeders of that kind of cattle or all kinds of Poll Angus. If we want to make a change, it would be best to begin now. The name will soon be changed to Aberdeen Angus. We see this already in the *Breeders' Gazette*. I think it would be wise for us to adopt that name now and let it go into the premium list as Aberdeen Angus rather than polled.

Mr. Beeler. I think changing to the special name, as proposed by Mr. Mitchell, would make a material difference, even granting that Aberdeen and Angus are the same, as we have several other polled breeds, three, at least, of which now occur to me, the Galloway, the Norfolk Red Polled and the Suffolk Polled. Of these we have importations of the Galloway, specimens of which have been exhibited at our fairs, and the Norfolks. I do not know of any Suffolks. Under these circumstances I think it would certainly be better to let the report of the committee remain as it is.

The report was adopted.

Committee on Geology and Natural History ask for further time. Granted.

Mr. O'Neal, from the Special Committee on the President's address, submitted the following:

Your committee to whom the President's address was referred, would respectfully report that we fully concur in the suggestion therein, and recommend that portion in reference to fat cattle be referred to the Committee on Premium List.

J. K. O'NEAL, Chairman;

DEMPSEY SEYBOLD,

A. B. CLAYPOOL,

Special Committee.

Which report was accepted.

The Committee on Credentials reported, leaving out several counties having no reports, and the same was adopted after the following discussion:

Mr. Ragan. The proper way would be to act on the report of the committee. If there are other delegates present with proper credentials they should be recognized first, and after that additional delegates would be admitted at the pleasure of the Board.

Mr. Gilbert. I understand the law says they shall not be represented here unless they present a report, or if they have a good society they have a right to vote, but the report of the committee says they shall not.

Mr. Smüh. I see that Hamilton county is represented as having no statement sent in, but the President of our Society is here to represent us. Our fairs have been held regularly and good ones. Several other counties are in the same condition, with their reports lacking. It does seem to me that it would hardly be right to deprive those delegates of the right of voting.

On motion of Mr. Lockhart, the report of the Committee on Credentials was reconsidered.

Mr. Gilbert. The President or authorized delegate of county societies constitute this Delegate Board. There is no law for appointing a proxy.

Mr. Billingsly. I understand, with the committee, that redistricting the State does not affect the term of office of any member of this Board.

Mr. Lockhart. If this is adopted, do we elect according to this new arrangement?

President Custer. Yes, sir.

Mr. Lockhart. This Delegate Board can not do this.

Mr. Seward. My opinion is that the motion would have to be concurred in by the State Board proper. It is understood that the State Board and Delegate Board are merged into one, as only of a character to give them their wishes in matters that come up, but the final adoption must be by the State Board. A question may come up in this annual meeting, but after the adjournment of this Delegate Board the State Board will be in session, when the action of the Board proper will have to be taken.

Mr. Gilbert. All matters of legislation, paying out money, making premium lists, and the transaction of such other general business comes before the Board proper, and not the Delegate Board. I would make a motion that this report be referred back to the committee until this afternoon. We are too hasty, not knowing who has a right to vote, and should not vote on it now.

Mr. Billingsly. It is not in order to refer it back to the committee.

Mr. Mutz. Do I understand Mr. Gilbert, to refer this back to the committee?

Mr. Gilbert. Yes, to know whether we have a right to adopt it or not.

On motion, the application of Boone county and others, to be admitted on promise to furnish the required reports, was referred back to the Committee on Credentials, which Committee, after conference with the applicants, reported favorable, and the whole list, as recorded, was admitted as proper delegates.

While the committee was reconsidering the above matter, Mr. O'Brien moved that each county having a delegate present be entitled to vote. Which was adopted.

The Committee on Redistricting the State, appointed at the meeting one year ago, reported, and recommended the amend-

ment of Article 4 of the Constitution, so as to fix the term of members of the Board at two years, one-half to expire at the end of one year, and the remainder one year thereafter.

DISCUSSION ON REPORT—REDISTRICTING.

Mr. Mutz. If ever we intend to redistrict the State for agricultural purposes, there will never be a better time than now to equalize the representation. In doing so it will legislate no person out of office. I think if the State and Delegate Board ever want to adopt such a report, now is the time. If you reject it I hope we will never hear anything more about redistricting.

Mr. Elliott. I move the report be adopted.

Mr. Jones. I will say, as they now exist, we have the ninth district which has a population of 98,712, the tenth has a population of 81,696, the third, 94,217. These three are the smallest districts in the State. Some of the largest, for instance the fifteenth, which has 153,341, the seventh, 156,571; thus you observe that some of the delegates represent almost double the amount of population that other members do. It has been the purpose of your committee to equalize this as far as possible. We have taken the census of 1880, and find that the districts, were they equally represented, would be about 123,447 in each district. The committee have approximated near as possible to this 123,000. We have labored hard on this question to make this Board a representative Board; representing all portions of the State alike, and by so doing it does not change the status of any member of the Board now holding office. I think no better opportunity could exist for redistricting the State than now.

Mr. Lockhart. You recollect a year ago I recommended this matter of redistricting the State. Mr. President, we had at that time an object in view, which should not be lost sight of. You are aware that for many years the people of Marion county have asked that they might be represented on this Board by a representative of their own people; as the division is

made Mr. Dungan is left in this district. If this is adopted Marion and Johnson will compose one district. If the Board will do as they have done heretofore, I fear Marion county will still be without a member on the Board. I am not here as a particular champion of Indianapolis, but it is the center of the State, and the city of Indianapolis being located in that county, I think it should be entitled to a representation on this Board.

Mr. Ensminger. I am opposed to one man representing a district year after year. It is always best, in my opinion, to change this thing around. Montgomery and Boone never have had a member on the Board. This matter should be arranged so one man can not be a member of the Board more than two terms in succession. I am willing he should hold two terms, but am opposed to the third.

Mr. Cotton. It takes two or three years to learn what the duties of members are. We have men who have been standing in this position for many years, and they are beneficial to us. If you take them away just as they are beginning to learn their duty we are losing the benefit of their experience.

Mr. Hancock. It has been remarked that Marion county could not produce a good agricultural man. It is not the fault of this Delegate Board. When she puts the right kind of a man out they will elect him.

Mr. Billingsly. I represent Marion county on this Board. Marion county can boast of as much enterprise in agriculture as any county in the State. It does seem to me that so much interest as there is in the center of the State as Marion county has, in the way of manufacturing enterprise, that it deserves some recognition at the hands of this society. We had no candidate against Mr. Dungan at the time of his election, and all this reflection against Marion county is simply out of place.

Mr. Votaw. I like the report of the committee. I do not think it works a wrong to Marion county to have Johnson county attached to it. There are efficient men in Marion county, and will have their representation on this Board.

Mr. Seward. I am in favor of the adoption of the report of the committee. I am in favor of it because it will equalize the

representation in this Board. Marion county is valuable to us in our State Fairs; at the same time she can reap all the outside benefits that come from our State Fairs. The amount of money that is distributed in Indianapolis during the State Fair is immense. Marion county has the same opportunity to be represented that Johnson county has at the annual election of this Board; so it is with every other county in the State.

Mr. Elliott. I like the proposition because it has on its face fairness. I have desired that the representation should be in proportion to the population. In Henry county, where I live, we sustain three live agricultural societies; yet Henry county has never had a representation in this body since its organization. It is not the fault of this Board, but because we have not presented a man to represent us. I think Marion county has no injustice done to her. I have been over the different counties throughout the State of Indiana; I helped to build up Indianapolis and make it a great business center; and, as a son of Indiana, am proud of the city of Indianapolis. I favor the adoption of this report; I believe it is just, and the changes should be made.

Mr. Ensminger. My objection is to the third term system, I want us to make this impossible for any person to hold more than two terms in succession, and not confining those members of a certain district to one county all the time. I think it is best to keep it rotating around.

Mr. Kirkpatrick. I understand the character of that report is that of the division of the State. The idea strikes me that it should be adopted by the calling of the roll of the counties. I move that this vote be taken in that way.

Mr. Gilbert. I do not understand whether we have the right to do that or not. I would like to know when this will take effect.

Mr. Davidson. Will it be proper to go into this vote before the report of the Committee on Credentials?

President Custer. No.

Mr. Hargrove. I rise to ask the question whether the Legislature districted for agricultural purposes or not?

President Custer. The law says there shall be sixteen districts.

Pending the discussion of the matter, it was moved to be laid on the table until after dinner. Motion carried.

The Board then took recess until 1:30 P. M.

AFTERNOON SESSION.

Board met, President Custer in the chair.

Roll of the counties not yet responded again called.

Mr. Jones moved that the report of the Committee on Redistricting the State be taken up. Carried, and was read as follows:

INDIANAPOLIS, IND., January 3, 1883.

We, your Committee appointed at the January meeting, 1882, to redistrict the State and report at the annual meeting in January, 1883, have had the matter under careful consideration, and beg leave to submit the following recommendation, viz:

That Article 4 of the Constitution of the Indiana State Board of Agriculture be amended as follows: That all after the word "district," where it occurs in the fourth line, be stricken out and the following inserted: "Chosen for two years, one-half of whose terms expire every year, to-wit: Those representing first, second, third, fourth, eighth, fourteenth, fifteenth and sixteenth districts, as herein constituted, expire at the annual meeting in 1884; and those representing the fifth, sixth, seventh, ninth, tenth, eleventh, twelfth and thirteenth districts, to be elected at this meeting, expire at the annual meeting to be held in January, 1885, to be chosen by ballot."

1st District—Posey county	20,857
" " Vanderburgh county	42,192
" " Gibson county	22,742
" " Warrick county	20,162
" " Spencer county	22,122
Total	128,075
2d District—Knox county	26,323
" " Davis county	21,552
" " Martin county	13,474
" " Pike county	16,384
" " Dubois county	15,991
" " Crawford county	12,356
" " Perry county	16,997
Total	123,078

3d District—	Harrison county	26,326
" "	Washington county	18,949
" "	Orange county	14,366
" "	Floyd county	24,589
" "	Clark county	28,638.
" "	Scott county	8,344
	Total	121,212
4th District—	Jackson county	23,058
" "	Lawrence county	18,453
" "	Brown county	10,264
" "	Monroe county	15,874
" "	Greene county	22,996
" "	Owen county	15,901
" "	Sullivan county	20,333
	Total	126,871
5th District—	Jefferson county	25,977
" "	Switzerland county	13,336
" "	Ohio county	5,663
" "	Dearborn county	26,656
" "	Franklin county	20,090
" "	Ripley county	21,627
" "	Jennings county	16,453
	Total	129,702
6th District—	Bartholomew county	22,777
" "	Decatur county	19,799
" "	Rush county	19,233
" "	Fayette county	11,343
" "	Union county	7,673
" "	Wayne county	38,614
	Total	119,439
7th District—	Madison county	27,531
" "	Hancock county	21,123
" "	Hamilton county	24,809
" "	Henry county	24,115
" "	Shelby county	25,256
	Total	122,834
8th District—	Marion county	102,780
" "	Johnson county	19,532
	Total	122,312

9th District—Clay county	25,833	
“ “ Vigo county	45,656	
“ “ Parke county	19,450	
“ “ Vermillion county	12,025	
“ “ Fountain county	20,228	
Total		123,192
10th District—Putnam county	22,502	
“ “ Morgan county	18,889	
“ “ Hendricks county	22,975	
“ “ Montgomery county	27,314	
“ “ Boone county	25,921	
Total		117,601
11th District—Delaware county	22,927	
“ “ Randolph county	26,437	
“ “ Jay county	19,282	
“ “ Adams county.	15,385	
“ “ Wells county	18,442	
“ “ Huntington county	21,805	
“ “ Blackford county	8,021	
Total.		132,299
12th District—Carroll county.	18,347	
“ “ White county	13,793	
“ “ Benton county.	11,107	
“ “ Newton county	8,167	
“ “ Tippecanoe county.	35,960	
“ “ Warren county	11,497	
“ “ Jasper county	9,455	
“ “ Pulaski county	9,857	
Total		118,183
13th District—Clinton county	23,473	
“ “ Tipton county.	14,404	
“ “ Howard county	24,584	
“ “ Grant county	23,618	
“ “ Wabash county	25,240	
“ “ Whitley county	19,941	
Total		131,260
14th District—Elkhart county	33,453	
“ “ Kosciusko county	26,492	
“ “ Fulton county.	14,351	
“ “ Cass county	27,609	
“ “ Miami county.	21,052	
Total		122,951

15th District—	St. Joseph county	33,176	
" "	Marshall county.	23,416	
" "	Starke county	5,155	
" "	Laporte county	30,976	
" "	Porter county	17,229	
" "	Lake county.	15,091	
	Total		124,993
16th District—	Allen county	54,765	
" "	DeKalb county	20,223	
" "	Steuben county	14,644	
" "	Lagrange county.	15,629	
" "	Noble county	23,017	
	Total		128,278

Very respectfully submitted,

JACOB MUTZ,
AARON JONES,
ROBERT MITCHELL,
SAMUEL HARGROVE,
J. KELLY O'NEAL.

The amendment was adopted as read after the following

DISCUSSION:

Mr. Seward. I presume there is not a member of the Board proper or Delegate Board that is not in favor of the provisions of this redistricting of the State. I want it distinctly understood that I am in favor of it, but I want it done according to law. I have taken some pains since the adjournment to look this matter up; I have consulted with some of the best legal authority in the State. We are compelled by law to meet in the city of Indianapolis on Tuesday after the first Monday in January each year, with the Presidents of the various county societies, which constitutes the Delegate State Board of Agriculture. It is their duty to consult as to the agricultural interest throughout the State. Mr. President, this Delegate Board is an advisory board. There is one solution to this, in my opinion, and that is, let this Delegate Board vote on this question, and then let the Delegate Board take a recess until the Board proper passes or rejects it, as they see proper. It is an impor-

tant question, and a vast amount of money and a great deal of litigation is passed on this thing, and we must track the law and Constitution in the question. We would get far short of our duty if we failed to do it. There is nothing in the Constitution for the Delegate Board except to recommend and advise. I wish it were otherwise. I have some doubts as to the legality of this board proper to pass this after the Delegate Board is done with it. It is true, it will take two years to work a complete solution to the question.

Mr. Kirkpatrick. We are spending much time here. I hope we will drop this question soon. The State Board has all the advice from the Delegate Board that is necessary. To save time I propose to lay this subject on the table, and let us proceed with the order of business.

Mr. Mitchell. This should be referred to the Board proper, when it comes in. If the delegate Board has reported on it then the Board proper can go ahead and make this change.

Mr. Jones. It is certainly a question we should take up and consider now. There never has been in the history of our State, so far as representation is concerned, so great a feeling that there should be a fair representation. Why should Mr. Lockhart represent 170,000 and another member only 81,000? There is no justice in it. Let us go to work and make this division to-day. It does not affect the status of a single delegate here to-day.

Mr. Gilbert. Let the delegates in this meeting retire for the time being, and the Board proper continue in session and consider that question.

Mr. Seward. I do not believe the Delegate Board have the right to change the constitution, but have said they wanted a change. I would ask that this Delegate Board take a recess of ten or fifteen minutes. The State Board can then go ahead and pass on this.

Mr. Sieg moved that the State Delegates do now adjourn for the State Board proper to take action in the matter of the amendment to the Constitution.

Which motion was carried.

STATE BOARD MEETING.

WEDNESDAY, Jan. 3, 1883, 2:30 o'clock, P. M.

State Board proper met on call of the President. The following members answered to their names: Messrs. Mitchell, Hargrove, Hancock, Seward, Sunman, Quick, Dungan, Gilbert, Ragan, Barns, O'Neal, Kirkpatrick, Custer, Banks and Lockhart.

Mr. Hargrove moved to adopt the report of the committee to redistrict the State by amending Article IV of the Constitution, which reads as follows:

INDIANAPOLIS, IND., Jan. 3, 1883.

We, your committee appointed at the January meeting, 1882, to redistrict the State and report at the annual meeting in January, 1883, have had the matter under careful consideration, and beg leave to submit the following recommendation, viz.: That Article IV of the Constitution of the Indiana State Board of Agriculture be amended as follows: That all after the word "district," where it occurs in the fourth line, be stricken out and the following be inserted, "chosen for two years, one-half of whose terms expire every year," to-wit: Those representing the 1st, 2d, 3d, 4th, 8th, 14th, 15th and 16th districts as herein constituted, expire at the annual meeting of 1884, and those representing the 5th, 6th, 7th, 9th, 10th, 11th, 12th and 13th to be elected at this meeting, expire at the annual meeting to be held in January, 1885, to be chosen by ballot.

Here followed a repetition of the redistricting of the State into sixteen agricultural districts, as set forth on the preceding pages, and signed by

JACOB MUTZ,
AARON JONES,
ROBERT MITCHELL,
SAMUEL HARGROVE,
J. KELLY O'NEAL,

Committee.

• Adopted unanimously. On motion, adjourned.

DELEGATE BOARD.

WEDNESDAY, January 3, 1883, 3 o'clock P. M.

The Delegate State Board of Agriculture was called to order by President Custer, and proceeded to the election of members of the Board proper, to fill the places of members whose terms expire with the close of this session, which resulted as follows:

- 5th District—T. W. W. Sunman, Ripley county.
- 6th District—Dick Jones, Bartholomew county.
- 7th District—W. W. Cotteral, Henry county.
- 9th District—Henry La Tourette, Fountain county.
- 10th District—Jasper N. Davidson, Montgomery county.
- 11th District—John M. Graham, Delaware county.
- 12th District—Chas. B. Stuart, Tippecanoe county.
- 13th District—John Ratliff, Grant county.

Adjourned to 7:30 P. M.

EVENING SESSION.

Board met, President Custer in the chair.

Professor Friedley being absent, the next on the programme was an address from Prof. H. W. Wiley, State Chemist of Purdue University. Subject: Sorghum, its Success and Value; which was received with much interest. Following this, Prof. W. C. Latta, Professor of Agriculture of Purdue University, then read his address on the subject: Practical Value of Instruction in Agriculture.

On motion of Mr. Lockhart, a rising vote of thanks was tendered Professors Latta and Wiley for their able addresses, which will be found, in full, elsewhere in these pages.

Mr. Ragan offered the following resolution, which was adopted:

WHEREAS, Adulteration of sugar and syrups with glucose, and so-called grape sugar, is carried on to an enormous extent, and partakes of the nature of a fraud on the consumer; therefore,

Resolved, By the Delegate State Board of Agriculture, that the General Assembly of the State of Indiana, at its present session, be requested to pass a bill requiring all sugar and syrup, sold in this State, to be sold under their true names, and

setting forth the kind and extent of adulteration which each may contain, and that proper means be devised for detecting such adulterations, and proper penalties imposed for violation of the statute.

The following resolution, offered by Dr. A. C. Stevenson, formerly of Putnam county, now of this city, read by Mr. L. S. Fitch, was adopted:

WHEREAS, The prospect of the manufacture of sugar and syrup in any amount wanted for home consumption or export, from sorghum, sugar beets and Indian corn (not the stalks), is made by recent discoveries and experiments a certainty; and,

WHEREAS, This result may be greatly hastened by the proper encouragement from those in authority, and who are in charge of the great interests of the country; and,

WHEREAS, This interest must, when fully established, be of incalculable value to agriculture in affording an additional means for the consumption of the immense corn crop of the country, and in the extensive cultivation of sorghum and the sugar beet, affording additional employment for labor and profits to agriculture. Late experiments seem to indicate that sorghum as a sugar-producing plant is equal to Louisiana cane. The value of the beet as a sugar-producing plant has been so well substantiated by its long and successful use in France and Germany that it needs no word of commendation; we may state, however, that there are now four establishments in this country for the manufacture of beet sugar, with a capital of \$365,000, using material worth \$128,000, and yielding a sugar product worth \$282,572.00; therefore

Resolved, That the attention of our Representatives in Congress and the members of our State Legislature be called to a special consideration of this great interest and requested to give such encouragement as the importance of the subject requires, the proper time for harvesting the cane, and any other details thought necessary;

Resolved, That all individuals who have had more or less success during the past year be requested to do the same;

Resolved, That we recommend to the farmers of the State the cultivation of sorghum for domestic use and experiment;

Resolved, That we tender the recently formed Sorghum Association of the State our hearty sympathy in their efforts to promote the manufacture of sugar from this plant;

Resolved, That the State Board of Agriculture be requested to offer such premiums as to them may seem proper, and to accept such individual premiums as may be offered, and to be placed at the disposal of the Sorghum Association, who shall open a special department at the Fair of 1883 for this industry, in such location as may be assigned them by the State Board of Agriculture.

Followed by remarks.

Dr. Furnas. There is a large community interested in the growing of cane. In order to carry on this work successfully,

we need a little legislative assistance. Shall we let it slip by and not ask for that aid to promote this work? We have been getting from \$200 to \$500 a year for our Horticultural Society. We had a convention here last week on this subject, but we have no means with which to publish the proceedings and send them out to the people. If the Legislature would give to the people a sufficient appropriation to send out those investigations, it certainly would be doing a good thing. If we ask it of the Legislature we will get it; if we do not, we will not get it. The people have got to ask for those things. Three or four hundred dollars would send this report out among the people, which would be valuable. Let each man go home and go to work, and ask their member in the House to give his influence in securing the passage of a bill appropriating \$400 or \$500 in this work. A few years ago we appointed a man to go to the World's Exposition, in France, but gave him no money to go on. Illinois appropriated \$8,000 for that enterprise. They furnished their hams, corn, and other products, and I believe they sent corn from Indiana. I sent corn for Ohio. Indiana should be ashamed of such a record. Let us take hold of this and try to develop it. It needs development. The samples on the tables show something nice can be made. Take the specimens on the table last week, and those furnished me at the Mississippi Valley Cane Growers' Convention and compare them, and see if Indiana is not better than any.

Secretary Heron reported a communication from California in regard to analysis on sugar beets raised in Indiana, which was commented on by Professor Wiley, State Chemist, unfavorably.

The Board then adjourned.

MORNING SESSION.

THURSDAY, Jan. 4, 1888.

Board met at 8:30 o'clock A. M., President Custer in the chair.

Minutes of all the previous sessions not heretofore read, were read, corrected and approved.

By consent, Prof. B. C. Hobbs gave some suggestions on the importance of stock laws.

First. On desirability and necessity of enforcing the stock law, and what amendments to these laws are desirable.

Second. On the comparative merits of hedge, wire, and board fences, and what combination is most economical, and also the relative value of posts and trees for wire fences; also, what proportion of posts, or what kind of trees are most desirable.

Third. On comparative value of timber trees for farm and forest purposes.

Prof. B. C. Hobbs. I wish to detain you but a few minutes. There are three subjects which I wish to call your attention to: 1st. As to the desirability of enforcing the stock laws. We need protection from those who own stock, but no land to pasture their stock on. It is generally known throughout Indiana that almost the entire land is fenced up except the roads. If there is any good grazing along the roads it belongs to the people who own the land. Stock that do not get enough to eat become breechy, often breaking over fences and damaging the crops. Such persons have no right to encroach upon the rights and privileges of the landholders. Let this matter be put in the proper way; if the law is deficient, let it be made better. Let the vote of the township, for instance, designate who shall take them up and impound them. 2d. The next subject is definite and satisfactory information upon the subject of fencing. Our fencing timber is rapidly disappearing; railroads are taking large quantities of our timber for ties, and it is fast getting away, and we will soon have to raise timber for ourselves and railroads, and it will take several years for timber to grow. It is high time we were raising timber, hence I think the sooner we direct our attention to this subject the better. There is a great deal said in reference to applications of oils and bitumen to prevent posts from decaying in the ground. It is desirable to know what is the best way to preserve them. If we use oak posts they decay after ten or twelve years, and occasionally they will last eighteen or twenty. It is very expensive to make a fence that will last any longer than that. Wire fence will do

for certain kinds of stock, but will not do for pigs and sheep; they will go through a fence that you would not think they could. The next question is, if we resort to wire what can we have for posts to best advantage? Shall we take oak and prepare them with oil and bitumen, or shall we plant trees one to two rods apart, and what kind of trees we should plant? I think Dr. Furnas will bring some important schemes before you in regard to the catalpa; it is a valuable timber, and I should not wonder if that tree is not the right kind to plant. We can use the limbs for fire wood, and thus have double economy. The locust will spread too much if damaged by the borer. These are questions which should be taken up by men of deliberate judgment, passed upon and recommended to the people without risk of expense. I think it is right for us to have some definite opinion upon this subject. 3d. Another subject is forest trees. We should look toward cultivating forest trees for wind breaks, or planting them by the acre so as to supply our farmers again with timber for mercantile purposes. In passing through England, I find there, in mountain regions, trees planted by the million, but could not find any definite opinion as to the most durable kind that are reliable. Our experience as to forest growth is not sufficient to know what to plant; every man has to think for himself. I would think it proper to have a fair premium offered for the best essay on the subject of "Forest trees and the manner of planting them." It requires a great deal of literary ability to acquire what we want on this subject. The embarrassment I feel on this subject to know what to do has led me to present this subject before you to-day.

Mr. Ragan. It seems to me that it is exceedingly unfortunate to convene from various parts of the State, at great expense, and remain in session for a period of three days, and scarcely touch such an important subject as this presented by Professor Hobbs. I would suggest that a large amount of routine work that we have been used to doing, which is necessary, of course, that is done in this open body, be done in a committee. I refer more especially to the long, tedious roll call

to ascertain who are present and by what authority. Then our time could be given to discussions on such subjects as this introduced by Professor Hobbs. He has struck three questions in which we are all interested. The time has been when there was a large amount of land not fenced; for the present we should take a step forward. I believe legislation is often hindered by extreme measures, especially on the subject of temperance. Perhaps we have not reached the time when a practical stock law would be right; but we have certainly for pigs, mules and jacks, which should be taken from the public highway. The cow can be tolerated, but certainly not the others—because of the damage done to the highways. The great objection to the horse is because of his breechy habits. Horses running at will on the highways often cause teams to become frightened and unmanageable. But we have not time to discuss this point in detail. The question is as to how to make this fence. The Professor has made the right kind of allusion as to live posts. These may be of various kinds; the best, perhaps, may be catalpa, and cheaper than any other kind of posts. There is a difficulty in attaching wires to trees; the driving of staples in the tree is objectionable. The question of the timber interest is one of great importance. Dr. Furnas will bear me out in this assertion. The greater part of our valuable timber has been taken out of the country. Two years ago last March a gentleman came into our village and proposed to buy timber. We thought him insane at the time. He is still there. His transactions consisted chiefly in buying timber for barrel heads. He got them out in such quantities we could not tell where it came from. Finally, he got to making plow beams, and is now engaged in sending hickory timber to the carriage shops. I asked him a few days ago what his transactions had been where we considered there was little or no timber. He told me he had paid out \$175,000 for timber, and \$75,000 to get it out for shipping, and 1,500 car loads of timber had been got out.

The Committee on Unfinished Business reported, and recommended a committee on award of Gov. Porter's premium

for the best report on the answers as propounded by circular to the agricultural societies of the State, which was adopted.

And the chair named the following as such committee: R. M. Lockhart, Samuel Hargrove, John Ratliff.

Next in order followed an essay by Prof. F. A. Friedley, of New Albany, on "Education Necessary to Successful Farming," which was received with close attention and expressions of approbation.

When, on motion, a vote of thanks was given Prof. Friedley, by a rising vote, for his very able address. (Published in full as essay matter.)

Dr. A. Furnas, then presented his paper on "Timber Culture."

On motion of Mr. Lockhart, a rising vote of thanks was tendered. (Also to be found under essays.)

The paper on "Our Productive Industries," by J. B. Conner, Chief of the Bureau of Statistics, was next read, and the convention tendered their vote of thanks. (Published in full elsewhere.)

On motion of Mr. Quick, on Senate Bill, H. R., 4429, an act to enlarge the powers and duties of the Department of Agriculture, offered the following resolution:

Resolved, That this society heartily approve of the Senate Bill introduced by Senator Logan, proposing a transfer of so much of the signal service as relates to climate and weather forecasts, to the civil department of the Government; but we earnestly recommend that this transfer be made to the Department of Agriculture, where the subject of climate naturally belongs as being closely related to agriculture. Adopted.

Mr. Jones read the following resolution:

WHEREAS, The experiment of holding a series of Farmers' Institutes, inaugurated by this Board at its annual session, January, 1882, as a means of imparting scientific and practical information, and awakening an increased interest in education and better and more successful modes and methods of practical agriculture, have proved eminently successful, and, in the opinion of this Board, should be continued as a permanent educational measure, tending to a higher appreciation of the practical value of a more general knowledge of the sciences in the successful prosecution of agriculture; therefore, be it

Resolved, That this Board use its influence and memorialize the Legislature for an annual appropriation of \$1,000, to be used in the defraying of the expenses of

these Institutes. Ours being an agricultural State, the highest interest of the commonwealth will be promoted by stimulating and fostering a more perfect and complete development of our agricultural resources in this manner.

On motion of Mr. Lockhart, the resolution was adopted after the following remarks:

Mr. Jones. If we are to advance and take rank as one of the first States of the Union in agriculture, it must be in the intelligence of the tillers of the soil. The reading of such papers as have been read here to-day, will stimulate them to greater and higher efforts and more careful education of their families, and promote the question of a live education in our State, more than anything else that has been acquired, and do us more good. I hope the resolution will be adopted.

Secretary Heron. In this connection allow me to make a statement and a suggestion. The State Industrial Associations, seven in number, have arranged to ask the Legislature for a small appropriation, to be placed in the care of the Board of Agriculture, to pay the incidental expenses of their meetings. The bill is now in the hands of a committee, so I have been informed. The Farmers' Institutes are of the same nature as these associations—all in the interest of agricultural education in the true sense of the word. And it would be well to include the appropriation for the Institutes in the same bill, more especially so, as it is proposed to have the appropriation placed in same hands, and go through the same channel. By so doing it will insure the success of the measure by uniting the friends of all the associations, and securing their influence.

Mr. Jones. It is just what we do not want to do. It is centering this thing at Indianapolis. We want to carry this away from Indianapolis. It is purely an educational arrangement, and we want to keep it perfectly distinct.

Mr. Lockhart. This matter came up a year ago. I think the arrangement which Mr. Heron refers to is practical. I had the pleasure of attending the Institute at Crawfordsville last year. The object we have is to hold meetings where men have interest enough to come and hear the lectures and ask questions. Let us come together and hold such meetings and get the

people interested. In Ohio, Secretary Chamberlain holds such institutes throughout the State, which are paid for by special appropriation, and they are doing much good. The business of farming is noble in its nature. It is not necessary to come to the city to be educated, we want to take this over the State. Governor Porter said he would favor a bill to pay the expenses of those who had to travel to these Farmers' Institutes.

Mr. Heron. I wish to correct the idea advanced by Mr. Jones, that there is any disposition to centralize the Farmers' Institute at the Capitol, and fail to see, how combining the appropriations referred to would have that effect, in any way, or more so than if kept distinct. In arranging for the Institutes under the auspices of the Board, we have endeavored to locate them at places that are not tributary to Indianapolis, other things being equal.

REPORT OF COMMITTEE ON FAIR GROUNDS.

Your Committee on Fair Grounds beg leave to report that they have visited the grounds, and take pleasure in reporting that they find the buildings and improvements in good condition.

By way of suggestion, your Committee would further remark that a portion of the old sheds and stalls on the west side of the ditch have been sold and removed by the General Superintendent, in obedience to the expressed wish of the Board at its last regular meeting. We would recommend that the remaining old sheds and stalls should be removed, and that, in their places, new buildings be erected for occupancy prior to the State Fair, in such manner and after such style as may be decided upon by the proper committee of this Board.

Your Committee would also suggest the propriety of the erection of additional bridges over the ditch, for the accommodation of vehicles and pedestrians visiting the fairs; also, as an æsthetic embellishment of the grounds, the propriety of the re-improvement of the fountain in the center of the grounds.

W. H. RAGAN,
J. P. BARNS,
S. W. DUNGAN,
W. M. COCKNUM.

Motion of Mr. Hargrove, that the report be received and the committee be discharged. Carried.

The Board then adjourned to 1:30 p. m.

AFTERNOON SESSION.

Board of Delegates called to order, President Custer in the chair.

Motion of Mr. Dungan, to request Mr. Kingsbury, editor of the *Indiana Farmer*, to publish the addresses by Prof. F. A. Friedley and Prof. W. C. Latta, in full. Was adopted.

Motion of Mr. Lockhart, to refer the papers that have not been read to be printed in the Annual Report. Adopted.

Mr. Lockhart moved that delegates be appointed to attend the convention to be held at Washington, D. C., commencing January 23, 1883, in the interest of agriculture in general.

On motion of Mr. Mitchell, that it be referred to the Board proper. Adopted.

Secretary Heron then read the report as compiled from the answers to questions as suggested by Governor Porter, last year.

The Delegate Board then adjourned *sine die*.

MEETING OF THE OLD BOARD.

The Board proper met at 2:30 p. m., President Custer in the chair. Roll being called, showed that members present were Messrs. Mitchell, Hargrove, Hancock, Seward, Quick, Dungan, Ragan, Barns, Kirkpatrick, Custer, Banks and Lockhart.

Minutes of the last meetings of the Board and Executive Committee read and approved.

On motion of Mr. Ragan, that such protest as is now pending be referred to the February meeting. Adopted.

Mr. Lockhart offered the following communication from Mr. Mutz:

EDINBURG, IND., December 12, 1882.

To the State Board of Agriculture of Indiana:

As my election as Representative of Shelby county in the next General Assembly vacates my position as a Trustee of Purdue University, I herewith tender my resignation. With many thanks to your Honorable Board for past favors, I ask that your acceptance may be put upon the records.

Yours very respectfully,

JACOB MUTZ.

Which was accepted.

Motion of Mr. Ragan, that the successor of Mr. Mutz, as Trustee of Purdue University, be deferred until the February meeting. Carried.

No business being presented, on motion, the old Board adjourned.

IMPORTANT INFORMATION.

The following questions, suggested by Governor Porter, were adopted by the delegates at the last annual Agricultural Convention, with a view of gathering reliable information in this manner, on such subjects as the farming community are deeply interested in, and thus aid in developing the resources of the State.

The following report is a condensed statement of the answers to the circular of questions issued last November to the officers of the agricultural societies and many prominent farmers:

1. The percentage of lands underdrained in your county or district?

One-third of the answers are: "None, or very little." The others range from 1 per cent. to 75 per cent., thus proving that only portions of the State require drainage. The largest percentage of drained lands is reported in Henry county, 75 per cent.; next is Boone, 40 per cent.; Tipton, 33½ per cent.; Gibson, 33 per cent.; Randolph, 25 per cent., and Montgomery and Clinton, 20 per cent.

2. The depths of drains found best?

These answers range from 1 to 4 feet, one-third of the answers give 3 feet, and one-half give preference to 2½ feet as the average depth found best.

3. The distances apart found best for thorough drainage?

The experience in this State is not sufficient to form any rule, especially so, as many answer: "It depends on the lay of the land." The answers range from 4 to 15 rods, and one answer adds, not less than 4-inch tile should be used.

4. Whether, in any soils, so much underdraining has been done as to be found injurious?

One uniform answer to this, and surprise at such a question, and "never heard of such a thing," remarked.

5. Whether the drains have in any cases filled up, and why? or the tiles proved defective, and why?

All answer yes, except one case that states "no complaint." Various reasons are given: Uneven laid, want of fall, want of outlet, soft tile, roots of both timber and grass. One case states want of ventilation, and one adds the remark that tile should not be used until exposed to the weather.

6. To what extent is a rotation of crops carried on, in what manner, and what mode has been found most satisfactory?

The uniformity in these answers is remarkable. All report rotation. Corn, wheat, and sometimes other grain, then grass for two, three or four years, as the nature of the case may require. Clover frequently named alone to follow grain, and in some instances corn two years, then wheat two years, etc.

7. For the production of what crops is the soil of your county found best adapted?

One answer will serve for all. Corn in bottom lands, wheat on uplands, and a list of all the grains and grasses peculiar to Indiana, except one county, Pike, that names tobacco.

8. Did you have a failure of any crop last season, and if so, what, and from what cause?

No failure in crops reported except in fruit, and an occasional overflow, natural causes, late frosts and local rains.

9. Did some farmers succeed in raising a full crop of this notwithstanding the nearly general failure? If so, how was their mode of culture different?

This question is answered by blanks, and an occasional "No."

10. What varieties of wheat do you raise, and what do you find best under all circumstances and conditions?

With but three exceptions, the unanimous reply is, Fultz has proven the best. The Lancaster, Mediterranean and Blue Stem each have one first preference. Next in order is named the Clawson, Baltimore Red, White Bearded, French Mediterranean, Deal and English. In one instance the Swamp wheat is named as next to the Fultz, and one case stated that the Fultz was giving out. That is in DeKalb county.

11. What varieties of corn do you raise, and what do you deem best?

The result of this question is, the large Yellow Dent on bottom land for late crop, and the Early White for upland and for early crops on late planting; in one case the Big White and Little Yellow is preferred. In Shelby the preference is made for the White Gregory; then Armstrong. In Newton the little Britton is named as the preference, but the Large Yellow may be considered as in the majority.

12. What varieties of potatoes do you raise, and what have you found best, and to what do you ascribe the running out of varieties?

If there has been any doubt as to the best potatoes, these answers ought to settle the question, judging from the remarkable verdict in favor of the Early Rose, as nine-tenths of the answers are in its favor, followed by the Peach Blow, Snow Flake, Deusneon, Hebron, and a number of varieties occasionally mentioned as being good—as doing well. Cause of running out given as want of care in selecting seed.

13. What manure do you employ, and to what extent are the solid and liquid manures of your stables preserved, and in what manner?

Stable and barnyard manure is the stereotyped answer, with one exception, where it is mixed with muck. The application of the manure is in the spring for corn land, or after harvest on wheat land, as the nature of the case may require.

14. To what extent are commercial fertilizers used in your county, and for what particular crops? If for any crop more than another, how efficient have they been, and to what degree is the use of these increasing? What particular brand of fertilizers have been most used?

No information elicited in this respect; most of the answers are "None." Some say very little bone dust, land plaster and phosphates are used on wheat land with good result. The correspondent in Shelby county remarks: "I have only seen one man use them. He tried both stable and commercial fertilizer. The fertilizer beat the stable manure about ten bushels to the acre of corn. I don't know what brand it was."

15. To what extent are agricultural journals taken among farmers?

The reports range from 1 per cent. to 90 per cent., with answers: "Extensive," "Considerable," "Limited," and "Very small," and some blanks, so that we will place the average at about 1 out of every 10. Steuben heads the list with 90 per cent.; Henry next, 75 per cent.

16. What percentage of timber land in your county, and what are the leading varieties?

The range is from "very little to 50 per cent. in Knox and Hendricks counties; one-fourth of the reports are 33 per cent.; one-fifth report 25 per cent., and one-eighth 20 per cent., of timber land." Oak seems to predominate with all the leading varieties named, more or less, as walnut, poplar, ash, maple, beech, elm, hickory, etc. The remark is made in the principal timber counties, that the walnut is about used up, and when any timber is reported it is generally "nearly all kinds."

17. Are you cultivating new timber in your county? If so, to what extent, what varieties, and in what portion of your farms, generally?

Nine-tenths of the reports state "None;" in Dearborn, some black walnut; in Hendricks, some walnut and catalpa; in three or four counties, "very little."

18. During the last year, to what extent has the use of improved agricultural implements increased in your county, and what kinds?

The range is all the way from "not much" to 200 per cent., Tipton county in the lead. Principally harvesters named, and sulky plows.

19. The best way to improve the public highways?

This is a question that admits of a wide range of discussion, and, perhaps, the most interesting of any on the list. The interest expressed therein is remarkable, and the answers may be summed up as follows: "Grade, drain and gravel," with remarks, and "Old law the best;" "By the citizens where interested;" "By a system of taxation and labor;" "Macadamizing;" "Not struck it yet" (referring to new road law); "Make good piece of road each year;" "Drain, and use hard material." One party remarks: "Make road bed not less than eighteen to twenty feet wide, good oval surface, and ditch on each side; keep clean."

20. The fencing, and the future supply of material for the same?

Barbed wires seem to predominate for new fence and the future supply. Hedging is mentioned occasionally; "Stock laws required" is named, and "Wires with catalpa posts;" "Wire and plank" is mentioned; "Board and wire" is named three or four times. Jay county reports, "Plenty of rails yet;" DeKalb, "Hedging;"

Montgomery county, "Fence the stock in," and "Plenty of fencing for twenty years yet." One party, in Montgomery county thinks the future fence will be a chalk mark, or painted stakes, each forty rods apart.

THE PREMIUM REPORTS.

The Board in session at the February meeting, 1883, appointed a committee to examine and award the premium of a silver medal, for the best annual report for 1882, from the County and District Agricultural Societies, the decision to be based on style, condensation, variety of matter, and giving the comparative condition of agriculture.

The committee made the following report:

Your committee to whom was referred the reports submitted by a large proportion of the County and District Agricultural Societies of the State, competing for the silver medal offered by the State Board of Agriculture, have had the same under consideration, and beg leave to make the following report:

We have carefully examined the reports from at least forty Agricultural Societies, and find many of them of great value. We decide the medal should be awarded to the Washington County Agricultural Society.

GOVERNOR PORTER'S PREMIUM.

Your committee to whom was referred the examination of papers prepared in answer to a series of questions proposed by Governor Porter, at the annual meeting of 1882, and for which his Excellency offered a special premium of twenty-five dollars for the best, have had the same under consideration, and beg leave to make the following report:

We have carefully examined the answers returned from a large number of counties in the State, and find many of them very full and interesting. We agree that the report from the county of Gibson is entitled to the premium offered.

Respectfully submitted,

R. M. LOCKHART,
SAML. HARGROVE,
JOHN RATLIFF,
Committee.

NOTE.—The questions referred to, and report thereon, will be found in the preceding pages.

INDIANA STATE FAIR.

PREMIUM AWARDS 1882.

HORSES.

W. A. BANKS, Superintendent.

CLASS I.—Heavy Draft Horses.

(Where State is not given, Indiana is implied.)

Stallion, 4 years old and over, W. W. Isenhom, Whitestown, Boone county . .	\$40
Second premium, Pleasant Allman, Plainfield	20
Stallion, 4 years old and over (Clydesdale), W. S. Vanetta, Fowler	40
Second premium, Door Prairie Live Stock Association, Door Village . .	20
Stallion, 4 years old and over (Norman), Cal. Bates, Falmouth, Fayette county	40
Second premium, J. C. Duncan, Bloomington, McClain county, Ill. . . .	20
Stallion, 3 years old and under 4, John T. Pressley, Indianapolis, Marion Co.	30
Stallion, 3 years old and under 4 (Norman), Crumpacer & Winters, Westville.	30
Second premium, J. C. Duncan, Bloomington, McClain county, Ill. . . .	15
Stallion, 2 years old and under 3, Door Live Stock Association, Door Village.	15
Second premium, J. C. Duncan, Bloomington, Ill	8
Stallion, 1 year old and under 2, George LeClair, Westville, Laporte county .	10
Second premium, Cal. Bates, Falmouth, Fayette county	5
Stallion, sucking colt, Cal. Bates, Falmouth, Fayette county	\$8
Second premium, William Isenhom, Whitestown, Boone county	4
Mare, 4 years old and over, colt by her side, Cal. Bates, Falmouth, Fayette county	25
Second premium, William Isenhom, Whitestown, Boone county	12
Mare, 4 years old and over, colt by her side (Norman), Cal. Bates, Falmouth, Fayette county.	25
Mare, 3 years and under 4, Cal. Bates, Falmouth, Fayette county	15
Mare, 3 years old and under 4 (Norman), Cal. Bates, Falmouth, Fayette county	15
Mare, 2 years old and under 3, J. C. Duncan, Bloomington, McClain county, Ill	10
Second premium, Cal. Bates, Falmouth, Fayette county	5
Mare, 1 year old and under 2, Crumpacer & Winters, Westville.	8
Second premium, Cal. Bates, Falmouth, Fayette county	4

Sucking filly, Cal. Bates, Falmouth, Fayette county	7
Second premium, W. Isenhom, Whitestown, Boone county	3
Mare, 4 years old and over, regardless of having been bred (Clydesdale), Door Prairie Live Stock Association, Door Village, Laporte county	20
Second premium, Cal. Bates, Falmouth, Fayette county	10
Mare 4 years old and over, regardless of having been bred (Norman), Cal. Bates, Falmouth, Fayette county	20
Second premium, Crumpacer & Winters, Westville	10
Gelding 4 years old and over, Cal. Bates, Falmouth, Fayette county	20
Gelding 3 years old and under 4, Cal. Bates, Falmouth, Fayette county	15
Second premium, Pleasant Allman, Plainfield	8
Gelding 2 years old and under 3, Cal. Bates, Falmouth, Fayette county	10
Heavy draft team, Cal. Bates, Falmouth, Fayette county	25

Committee—Wm. O. Jackson, Joseph Cale and John Davis,
of Cass county.

CLASS II.—Horses for General Purposes.

Stallion, 4 years old and over, Door Prairie Live Stock Association, Door Village	\$40
Second premium, R. C. Young, Potomac, Vermillion county, Ill.	20
Stallion, 3 years old and under, Door Prairie Live Stock Association, Door Village, Laporte county	30
Second premium, George Sanford, Shannondale, Montgomery county	15
Stallion, 2 years old and under 3, Ezra Reed, Hope, Bartholomew county	15
Second premium, J. S. Apple, Lawrence, Marion county	8
Stallion, 1 year old and under 2, Cal. Bates, Falmouth, Fayette county	10
Second premium, J. W. Lucas, Reedville	5
Stallion, sucking colt, Cal. Bates, Falmouth, Fayette county	8
Mare, 4 years old and over, colt by her side, Cal. Bates, Falmouth, Fayette county	25
Second premium, W. R. Harman, Whitestown, Boone county	12
Mare, 3 years old and under 4, T. C. Nichols, Indianapolis	15
Second premium, Joe. Ray, Columbus	8
Mare, 2 years old and under 3, W. Conner, New Ross, Montgomery county	10
Mare, 1 year old and under 2, J. C. Duncan, Bloomington, Ill	8
Second premium, W. A. Ketchan, Indianapolis	4
Sucking filly, Cal. Bates, Falmouth, Fayette county	7
Second premium, W. R. Harman, Whitestown, Boone county	3
Mare, 4 years old and over, regardless of having been bred, Harlan Hadly, Plainfield	20
Second premium, Harlan Hadly, Plainfield	10
Gelding, 4 years old and over, Allen Jackson, Plainfield	20
Second premium, J. E. Stanley, McCordsville, Hancock county	10
Gelding, 3 years old and under 4, J. W. Lucas, Reedville	15

Second premium, Hamilton Jackson, Mooresville, Morgan county . . .	8
Gelding, 2 years old and under 3, J. S. Apple, Lawrence, Marion county . . .	10
J. P. Rinehart, Cicero, Hamilton county	5
Pair match geldings or mares, Crouch & Woodcock, Lafayette	25
Second premium, Geo. B. Cook, Indianapolis	12

Committee—W. O. Jackson, South Bend; Joseph Cale, Poseyville; John Davis, Cass county.

CLASS III.—Light Harness.

Stallion, 4 years old and over, E. Warman, Indianapolis	\$30
Second premium, Joe Kitchen, Greensburg	15
Stallion, 3 years old and under 4, Harley A. Russell, Indianapolis	25
Second premium, Finch Sharp, Indianapolis	12
Stallion, 2 years and under 3, D. L. Thomas, Rushville, Rush county	14
Second premium, Riddle & Morris, Petersburg, Boone county, Ky	7
Mare, 4 years old and over, colt by her side, Adison Bybee, Indianapolis . .	15
Mare, 3 years old and under 4, Joseph Ray, Columbus	14
Second premium, J. E. Stanley, McCordsville, Hancock county	7
Mare, 2 years old and under 3, D. L. Thomas, Rushville, Rush county	7
Second premium, Allen Shumaker, Clarksville, Hamilton county	3
Mare, 4 years and over, regardless of having been bred, Allen Jackson, Plainfield, Hendricks county	17
Second premium, John T. Gurley, Martinsville	7
Gelding, 4 years old and over, Joseph Ray, Columbus	15
Second premium, C. H. Walcott, Indianapolis	8
Gelding, 3 years old and under 4, Harley A. Russell, Indianapolis	14
Second premium, J. B. Hoover, Indianapolis	7
Gelding, 2 years old and under 3, W. A. Cox, Brightwood, Marion county . .	7

Committee—Joel Hazelton, New Castle, Ind.; Robert Watt, Connersville; J. S. Gilbreath, Indianapolis.

CLASS IV.—Trotting, Running and Pacing Races.

TUESDAY, Sept. 26.

PACING RACE—2:35 class.

Geo. Grimes, Rockville, Billy G.	\$75
Second premium, Thos. Levi, Noblesville, S. G. Buck Dickerson	40
Third premium, F. Wheelburg, Indianapolis, Little Jett	20

WEDNESDAY.

THREE MINUTE TROT.

W. Fields, Washington, Ill., Judge Samuel	\$100
Second premium, Cal. Bates, Falmouth, B. Stallion Longbranch	75
Third premium, Jo. Kitchen, Edinburg, B. S. Smuggler	25

WEDNESDAY.

TROTTERS—2:37 class.

Buck Dickerson, Greensburg, Jim Ervin	\$80
Second premium, Geo. Grimes, Rockville, Joe Davis	50
Third premium, All. Beamer, Indianapolis, W. B	20

TUESDAY.

RUNNING RACE—4 years old and over.

S. J. St. Clair, Indianapolis, Radclift	\$120
Second premium, Cal. Raines, Logansport, Wesley	60

TUESDAY.

PACING RACE—free for all.

T. J. Dewey, Charlie H	\$160
Second premium, Buck Dickerson, Greensburg, Daisy D	90
Third premium, Ben Davis, Indianapolis, Hoosier Sam	50

THURSDAY.

TROTTING RACE—2:30 class.

W. A. Hanson, Connersville, Lady Elgin	\$125
Second premium, Ben Davis, Indianapolis, Polly Wishard	75
Third Premium, W. P. Maxwell, Blanch H.	50

FRIDAY.

FREE FOR ALL TROT.

Maxwell, Lady Elgin.	\$200
Second premium, Ben Davis, Indianapolis, B. mare Ima G	125

FRIDAY.

CONSOLATION—Running Race.

S. J. St. Clair, Indianapolis, Leaveridge	\$40
Second premium, J. F. Hartsock, Lawrence, Harry Hull	20
Third premium, J. C. Gasway, Bloomington, Nora B.	10

Committee—Enoch Worman, Indianapolis; Joe Rea, Madison;
Robert Watt, Waterloo.

CLASS V.—Saddle Horses.

Stallion, gelding or mare, any age, Riddle & Morris, Petersburg, Boone county,
Ky
Second premium, Harry Phillips, Indianapolis

Committee—J. S. Gilbreath, Indianapolis; D. B. Woodcock,
Lafayette; Joel Hazelton, Newcastle.

CLASS VI.—Sweepstakes on Horses.

Stallion of any age or class, W. S. Vanwatta, Fowler	\$45
Mare of any age or class, Cal. Bates, Falmouth, Fayette county	03
Stallion showing three best colts under 1 year old, W. W. Isenhom, Whites-town, Boone county	40
Herd of six, consisting of one stallion and five mares, heavy draft, to be owned by one exhibitor, Cal. Bates, Falmouth, Fayette county	40

Committee—Jas. P. Forsyth, Franklin; Isaah Nicholson, New Castle; R. Craig, Greenwood, Johnson county; Harvey Sodowsky, Indianola, Illinois.

CLASS VII.—Jacks, Jennets and Mules.

Jacks, 3 years old and over, J. R. Hernly, New Castle	\$20
Second premium, John Ragland, Morton, Putnam county	10
Jacks, 2 years old and under 3, Abner Siggler, Greencastle, Putnam county	15
Jennets, 3 years old and over, Abner Siggler, Greencastle, Putnam county	10
Second premium, L. S. Brown, Carmel	5
Mules, 2 years old and under 3, L. S. Brown, Carmel	8
Second premium, L. S. Brown, Carmel	4
Mules, 1 year old and over, L. S. Brown, Carmel	7
Second premium, L. S. Brown, Carmel	3
Mule colt, L. S. Brown, Carmel	6
Second premium, A. W. Beck, Lebanon, Boone county	3

Committee—W. O. Jackson, South Bend; Joseph Cale, Poseyville; D. L. Crumpacer, Westville.

CLASS VIII.—Sweepstakes on Jacks and Jennets.

Jacks, any age, J. R. Hernly, New Castle, Ind.	\$20
Jennet, any age, Abner Siggler, Greencastle, Ind.	10
Jack showing 3 best colts under 1 year old, L. S. Brown, Carmel, Ind	20

Committee—Jas. P. Forsyth, Franklin; Geo. Cutsinger, Edinburg; D. F. Drook, Liberty.

CATTLE.

S. R. QUICK, Superintendent.

CLASS IX.—Short Horns.

Bull, 3 years old and over, Harvey Sodowsky, Indianola, Illinois	\$50
Second premium, J. H. Potts & Son, Jacksonville, Illinois	25
Bull, 2 years old and under 3, Thos. Wilhoit, Middletown	30

Bull, 1 year old and under 2, Ezra Swain & Son, Noblesville, Hamilton county	20
Second premium, J. H. Potts & Son, Jacksonville, Illinois	10
Bull calf, J. H. Potts & Son, Jacksonville, Morgan county, Illinois	50
Second premium, Harvey Sodowsky, Indianola, Illinois	25
Cow 3 years old and over, Harvey Sodowsky, Indianola, Illinois	40
Second premium, Thos. Wilhoit, Middletown	20
Cow, 2 years old and under 3, Harvey Sodowsky, Indianola, Illinois	20
Second premium, Ezra Swain & Son, Noblesville	10
Heifer, 1 year old and under 2, J. H. Potts & Son, Jacksonville, Illinois	15
Second premium, Ezra Swain & Son, Noblesville	8
Heifer calf, Thos. Wilhoit, Middletown	10
Second premium, J. H. Potts & Son, Jacksonville, Illinois	5
Breeding cow, with calf at foot, Thos. Wilhoit, Middletown	40
Second premium, J. H. Potts & Son, Jacksonville, Morgan county, Ill	20

Committee—Dick Jones, Columbus; O. Siple, Petersburg; Charles Kuntz, Lafayette.

CLASS XII.—Jersey Cattle.

Jersey bull, 3 years old and over, W. J. Hasselman, Indianapolis, Marion county	\$30
Second premium, Beech Grove Farm, Ingallston, Marion county	15
Bull, 2 years old and under 3, Beech Grove Farm, Ingallston, Marion county	20
Second premium, Gray & Jackson, Centerville, Wayne county	10
Bull, 1 year old and under 2, Beech Grove Farm, Ingallston, Marion county	15
Second premium, T. P. Haughey	8
Bull calf, Beech Grove Farm, Ingallston, Marion county	8
Second premium, R. A. Mayhall, Maysville, Putnam county	4
Cow, 3 years old and over, Garrelson Brothers, Pendleton	20
Second premium, Beech Grove Farm, Ingallston, Marion county	10
Cow, 2 years old and under 3, Beech Grove Farm, Ingallston, Marion county	15
Second premium, Garrelson Brothers, Pendleton	8
Jersey heifer, 1 year old and under 2, W. J. Hasselman, Indianapolis	10
Second premium, Beech Grove Farm, Ingallston, Marion county	5
Heifer calf, Beech Grove Farm, Ingallston, Marion county	8
Second premium, W. J. Hasselman, Indianapolis	4
Breeding cow with calf at foot, Beech Grove Farm, Ingallston, Marion county.	2

Committee—Harvey Sodowsky, Indianola, Ill.; Daniel F. Drook, Liberty; T. F. White, Jamestown, N. Y.

CLASS XIII.—Devon Cattle.

Bull, 3 years old and over, J. J. Scarff & Son, New Carlisle, Clark county, O	\$30
Second premium, Irvin York, Brock, O	15
Bull, 1 year old and under 2, J. J. Scarff & Son, New Carlisle, Clark county, O	15

Bull calf, J. J. Scarff & Son, New Carlisle, Clark county, O.	8
Second premium, Irvin York, Brock, O.	4
Cow, 3 years old and over, J. J. Scarff & Son, New Carlisle, Clark county, O.	20
Second premium, Irvin York, Brock, O.	10
Devon cow, 2 years old and under 3, J. J. Scarff & Son, New Carlisle, Clark county, O.	15
Second premium, J. J. Scarff & Son, New Carlisle, Clark county, O.	8
Heifer, 1 year old, and under 2, J. J. Scarff & Son, New Carlisle, Clark county, O.	10
Heifer calf, J. J. Scarff & Son, New Carlisle, Clark county, O.	8
Second premium, Irvin York, Brock, O.	4
Breeding cow, with calf at foot, J. J. Scarff & Son, New Carlisle, Clark county, O.	20

Committee—Harvey Sodowsky, Indianola, Ill.; T. F. White, Jamestown, N. Y.; D. F. Drook, Liberty, Ind.

CLASS XIV.—Ayrshire Cattle.

Bull, 3 years old and over, A. J. Wilson, Grafton, Lorain county, O.	\$30
Bull, 1 one year old and under 2, A. J. Wilson, Grafton, Lorain county, O.	15
Cow, 3 years old and over, A. J. Wilson, Grafton, Lorain county O.	20
Second premium, A. J. Wilson, Grafton, Lorain county, O.	10
Cow, 2 years old and under 3, A. J. Wilson, Grafton, Lorain county O.	15
Second premium, A. J. Wilson, Grafton, Lorain county, O.	8
Heifer, 1 year old and under 2, A. J. Wilson, Grafton, Ohio	10
Second premium, A. J. Wilson, Grafton, Ohio.	5
Heifer calf, A. J. Wilson, Grafton, Ohio	8
Second premium, A. J. Wilson, Grafton, Ohio.	4
Breeding cow, with calf at foot, A. J. Wilson, Grafton, Ohio	20

Committee—Harvey Sodowsky, Indianola, Ill.; Daniel F. Drook, Liberty, Indiana; T. A. Lloyd, Indianapolis.

CLASS XVI.—Fat Cattle, Sheep and Hogs.

Steer, 3 years old and over, Martin Cutsinger, Edinburg, Johnson county	\$20
Second premium, Martin Cutsinger, Edinburg, Johnson county	10
Fatted steer, Martin Cutsinger, Edinburg, Johnson county	25
Fatted cow, Thomas Wilhoit, Middletown, Ind.	10

Committee—O. Siple, Petersburg, Ind.; Dick Jones, Columbus, Ind.

Fat sheep, Thomas B. Bennington, Laporte, Ind.	\$5
Fat hog, E. & J. M. Klever, Bloomingburg, Fayette county, Ohio	5

Committee—O. Siple, Petersburg; Dick Jones, Columbus; Thomas Wilhoit, Middletown, Ind.

CLASS XVII.—Sweepstakes on Cattle.

Bull, any age or breed, Harvey Sodowsky, Indianola, Ill.	\$50
Cow, any age or breed, Harvey Sodowsky, Indianola, Ill.	50
Bull, to be exhibited with three of his calves not over 12 months old, Thomas Wilhoit, Middletown	50
Herd of five, consisting of 1 bull, 4 cows or heifers, 2 years old and over, Harvey Sodowsky, Indianola, Ill.	300
Second premium, Thos. Wilhoit, Middletown	200
Milk herd, consisting of 1 bull, 4 cows or heifers, 2 years old and over, Beech Grove Farm, Ingallston, Marion county	100
Second premium, W. J. Hasselman, Indianapolis	50

Committee—James P. Ross, Wabash; S. T. Gray, Indianapolis.

Herd under 2 years old, consisting of 1 bull and 4 heifers, owned by exhibitor sixty days previous to exhibition, Thos. Wilhoit, Middletown	50
Herd of 1 bull, 4 cows or heifers, any age or breed, owned and bred by exhibitor in Indiana, Thos. Wilhoit, Middletown	75
Second premium, Ezra Swain & Son, Noblesville	25

Committee—Daniel F. Drook, Liberty; Ed. Klever, Bloomingburg, O.; W. T. Manning, Greentown.

SHEEP.

S. W. DUNGAN, Superintendent.

CLASS XVIII.—Fine Wool Sheep (to include American, Spanish and French Merinos).

Buck, 2 years old and over, Copper & McFarland, Mt. Vernon, Ohio	\$14
Second premium, Thos. Wilhoit, Middletown, Ind.	7
Buck, 1 year old and under 2, Cook & Morse, Raymond, Marion county, Ohio	10
Second premium, Cook & Morse, Raymond, Marion county, Ohio	5
Buck lamb, Copper & McFarland, Mt. Vernon, Ohio	8
Second premium, Copper & McFarland, Mt. Vernon, Ohio	4
Ewe, 2 years old and over, Cook & Morse, Raymond, Ohio	12
Second premium, Cook & Morse, Raymond, Ohio	6
Ewe, 1 year old and under 2, Cook & Morse, Raymond, Ohio	8
Second premium, Cook & Morse, Raymond, Ohio	4
Ewe lamb, Cook & Morse, Raymond, Ohio	6
Second premium, Cook & Morse, Raymond, Ohio	3
Five lambs, Cook & Morse, Raymond, Ohio	10
Second premium, Uriah Privett & Bro., Greensburg, Ind	5

Committee—Moses Butterworth, Laporte, Ind.

CLASS XIX.—Leicester or Lincoln.

Buck, 2 years old and over, Wm. D. Privett, Greensburg	\$14
Second premium, J. G. Byars, Simpsonville, Shelby county, Kentucky . .	7
Buck, 1 year old and under 2, W. D. Privett, Greensburg	10
Second premium, Arty Brothers, Orsborn, Green county, Ohio	5
Buck lamb, W. D. Privett, Greensburg, Decatur county	8
Second premium, H. Minor, Liberty Station, Kentucky	4
Ewe, 2 years old and over, W. D. Privett, Greensburg, Decatur county . .	12
Second premium, R. T. Vorhies, Jr., Liberty Station, Kentucky	6
Ewe, 1 year old and under 2, Wm. D. Privett, Greensburg, Decatur county .	8
Ewe lamb, Wm. D. Privett, Greensburg, Decatur county	6
Second premium, H. Minor, Liberty Station, Kentucky	3

Committee—Wander W. Stevens, Salem, Ind.; Saml. Dinsmore, Bloomington, Ind.; J. W. H. Little, Corydon, Ind.

CLASS XX.—Long Wool Sheep—Cotswolds.

Buck, 2 years old and over, R. T. Vorhies & Son, Liberty Station, Ky	\$14
Second premium, W. T. Woodford & Son, Paris, Ky	7
Buck, 1 year old and under 2, W. T. Woodford & Son, Paris, Ky	10
Second premium, W. Hodson, Myrtle, Ontario, Canada	5
Buck lamb, T. W. Samuels & Sons, Deatsville, Nelson county, Ky	8
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky .	4
Ewe, 2 years old and over, W. T. Woodford & Son, Paris, Ky	12
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky .	6
Ewe, 1 year old and under 2, W. T. Woodford & Son, Paris, Ky	8
Second premium, Wm. Hodson, Myrtle, Ontario, Canada	4
Ewe lamb, T. W. Samuels & Sons, Deatsville, Nelson county, Ky	6
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky .	3
Five lambs, T. W. Samuels & Sons, Deatsville, Nelson county, Ky	10
Second premium, J. A. Heavenridge, Liberty	5

Committee—Wonder W. Stevens, Salem; J. W. H. Little, Corydon; W. W. Thrasher, Groves; Samuel Dinsmore, Bloomington; I. S. Blackridge, Rushville.

CLASS XXI.—Southdowns.

Buck, 2 years old and over, R. T. Vorhies & Son, Liberty Station, Ky	\$14
Second premium, Thomas B. Bennington, Laport, Lorain county, O . . .	7
Buck, 1 year old and under 2, Leslie Combs, Spring Station, Ky.	10
Second premium, R. M. Fisher, Danville, Ky	5
Buck lamb, Uriah Privett, Greensburg, Decatur county	8
Second premium, J. H. Potts & Son, Jacksonville, Morgan county, Ill . .	4
Ewe, 2 years old and over, R. M. Fisher, Danville, Ky	12

Second premium, Thomas B. Bennington, Laporte, Lorain county, O . . .	6
Ewe, 1 year old and under 2, R. M. Fisher, Danville, Ky	8
Second premium, R. M. Fisher, Danville, Ky	4
Ewe lamb, W. L. Marsh, Edinburg	6
Second premium, R. M. Fisher, Danville, Ky	3
Five lambs, R. M. Fisher, Danville, Ky.	10
Second premium, Uriah Privett, Greensburg.	5

Committee—Moses Butterworth, Laporte, Ind.

CLASS XXII.—Oxfordshire and Hampshire Sheep.

Buck, 2 years old and over, T. W. Samuels & Sons, Deatsville, Nelson county, Ky	\$14
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky .	7
Buck, 1 year old and under 2, Leslie Combs, Spring Station, Ky.	10
Second premium, Thos. B. Bennington, Laporte, Ohio	5
Buck lamb, Thos. B. Bennington, Laporte, Ohio	8
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky. .	4
Ewe, 2 years old and over, Thos. B. Bennington, Laporte, Ohio	12
Second premium, Thos. B. Bennington, Laporte, Ohio	6
Ewe, 1 year old and under 2, Thos. B. Bennington, Laporte, Ohio	8
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky. .	4
Ewe lamb, Uriah Privett, Greensburg, Decatur county	6
Second premium, T. W. Samuels & Sons, Deatsville, Nelson county, Ky. .	3
Five lambs, T. W. Samuels & Sons, Deatsville, Nelson county, Ky	10
Second premium, Thos. B. Bennington, Laporte, Ohio	5

Committee—Moses Butterworth, Laporte, Ind.

CLASS XXIII.—Sweepstakes, Fine Wool and other Sheep, (to include American, Spanish, and French Merinos.)

Buck, fine wool, Cook & Morse, Raymond, Union county, Ohio	\$10
Buck, having five lambs, Cook & Morse, Raymond, Union county, Ohio . . .	15
Ewe, any age, Cook & Morse, Raymond, Union county, Ohio	10
Buck, long wool, W. T. Woodford & Son, Paris Kentucky	10
Buck, having five lambs, J. A. Heavenridge, Liberty	15
Ewe, any age, W. T. Woodford & Son, Paris, Kentucky	10

Committee (Long Wool)—J. M. Cartrivill, Logansport, Ind.;
John Franklin, Anderson, Ind.; T. C. Phillips, Greensboro, Ind.

Buck, middle wool, T. W. Samuels & Sons, Deatsville, Kentucky.	\$10
Buck, having five lambs, Uriah Privett, Greensburg	15
Ewe, any age, T. W. Samuels & Sons, Deatsville, Kentucky	10
Flock, consisting of 1 Buck and 6 Ewes, T. W. Samuels & Sons, Deatsville, Ky	25

Offered by S. W. Dungan, breeder of Clydesdale Horses, Short Horn Cattle and Cotswold Sheep, Crystal Spring Farm, Franklin, Ind., for pair Cotswold Sheep, ram and ewe, owned in Indiana, and lambd the property of exhibitor, a silver medal, James M. Marlow, Adams, Ind. Silver medal

Committee (Fine and Middle Wool)—Moses Butterworth, Laporte, Ind.; John L. Thompson, Arcana, Ind.

HOGS.

T. M. KIRKPATRICK, Superintendent.

CLASS XXIV.—*Berkshire.*

Boar, 2 years old and over, A. S. Gilmore & Co., Greensburg	\$14
Boar, 1 year old and under 2, Powell & Heck, Waldron	12
Second premium, Powell & Heck, Waldron	6
Boar, under 12 and over 6 months old, Powell & Heck, Waldron	10
Second premium, James Riley, Thorntown, Boone county	5
Boar, under 6 months old, I. N. Barker, Thorntown, Boone county	6
Second premium, James Riley, Thorntown, Boone county	3
Sow, 2 years old and over, Powell & Heck, Waldron	14
Second premium, Powell & Heck, Waldron	7
Sow, 1 year old and under 2, A. S. Gilmore & Co., Greensburg	12
Second premium, A. S. Gilmore & Co., Greensburg	6
Sow, under 12 and over 6 months old, Powell & Heck, Waldron	10
Second premium, I. N. Barker, Thorntown	5
Sow, under 6 months old, I. N. Barker, Thorntown	6
Second premium, A. W. Martin, Muncie	3
Five shoats, under 6 months old, James Riley, Thorntown, Boone county	12
Second premium, Powell & Heck, Waldron	6
Sow, not less than 5 sucking pigs, Powell & Heck, Waldron	12

Committee—T. W. Litle, Muncie, Ind.; Wander W. Stevens, Salem, Ind.; W. T. Manning, Kokomo, Ind.

CLASS XXV.—*Poland China.*

Boar, 2 years old and over, A. S. Gilmore & Co., Greensburg	\$14
Second premium, E. & J. M. Klever, Bloomingsburg, Fayette county, O	7
Boar, 1 year old and under 2, E. & J. M. Klever, Bloomingsburg, Fayette county, O	12
Second premium, Mugg & Seagraves, Center, Howard county	6
Boar, under 12 and over 6 months old, E. & J. M. Klever, Bloomingsburg, Fayette county, O	10
Second premium, A. W. Ross, Muncie, Delaware county	5

Boar, under 6 months old, E. & J. M. Klever, Bloomingburg, Fayette county, O.	\$6
Second premium, Wallace & Andrews, Oxford.	3
Sow, 2 years old and over, E. & J. M. Klever, Bloomingdale, Fayette county, O.	14
Second premium, W. C. Williams, Knightstown.	7
Sow, 1 year old and under 2, W. C. Williams, Knightstown.	12.
Second premium, E. E. Elliott, Knightstown.	6
Sow, under 12 and over 6 months old, E. & J. M. Klever, Bloomingburg, Fayette county, O.	10
Second premium, A. W. Ross, Muncie, Delaware county.	5
Sow, under 6 months old, E. & J. M. Klever, Bloomingburg, Fayette county, O.	6
Second premium, Mugg & Seagraves, Center, Howard county.	3
Five shoats, under 6 months old, E. & J. M. Klever, Bloomingburg, Fayette county, O.	12
Second premium, Baker Bros., Greensburg.	6
Sow, and not less than five sucking pigs, Mugg & Seagraves, Center, Howard county.	12

Committee—John Thomas, Sharpsville; Warren Mason, Wabash; D. L. Crumpacker, Westville.

CLASS XXVI.—Large Breed Hog.

Boar, 2 years old and over, R. S. Russell, Zionsville, Boone county.	\$14
Second premium, Irvin York, Brock county, O.	7
Boar, 1 year old and under 2, R. S. Russell, Zionsville, Boone county.	12
Boar, 12 and over 6 months old, R. S. Russell, Zionsville, Boone county.	10
Second premium, R. S. Russell, Zionsville, Boone county.	5
Boar, under 6 months old, Irvin York, Brock county, Ohio.	6
Second premium, Irvin York, Brock county, Ohio.	3
Sow, 2 years old and over, R. S. Russell, Zionsville, Boone county.	14
Second premium, Irvin York, Brock county, Ohio.	7
Sow, 1 year old and under 2, Irvin York, Brock county, Ohio.	12
Second premium, Irvin York, Brock county, Ohio.	6
Sow, under 12 and over 6 months old, R. S. Russell, Zionsville, Boone county.	10
Second premium, R. S. Russell, Zionsville, Boone county.	5
Sow, under 6 months old, R. S. Russell, Zionsville, Boone county.	6
Second premium, R. S. Russell, Zionsville, Boone county.	3
Five shoats, under six months old, Irvin York, Brock, Ohio.	12
Second premium, R. S. Russell, Zionsville, Boone county.	6
Sow and not less than 5 sucking pigs, R. S. Russell, Boone county.	12

Committee—Wander W. Stevens, Salem, Ind.; W. T. Manning, Greentown, Ind.; Warren Mason, Wabash, Ind.

CLASS XXVII.—Suffolk, Essex and other small breeds, regardless of color.

Boar, 2 years old and over, A. W. Maze, Sharpesville, Tipton county.	\$14
Sow, 1 year old and under 2, A. W. Maze, Sharpesville, Tipton county.	12

Sow, under 12 and over 6 months old, A. W. Maze, Sharpesville, Tipton county \$10
 Second premium, A. W. Maze, Sharpesville, Tipton county 5

Committee—W. W. Stevens, Salem, Ind.; W. T. Manning, Greentown, Ind.; Warren Mason, Wabash, Ind.

CLASS XXVIII.—Sweepstakes on Hogs. (Poland Chinas, Chester Whites, Jersey Reds, and Other Large Breeds.)

Boar, any age, Poland China, Chester White, etc., Mugg & Seagraves, Center, Howard county \$20
 Sow, any age, E. & J. M. Klever, Bloomingsburg, Fayette county, Ohio. 20
 Herd of 1 boar, 5 sows, of any one breed, regardless of age or color, all owned by exhibitor, E. E. Elliott, Knightstown, Ind 40

Committee—Dick Jones, Columbus; John Davis, Logansport; E. R. Moody, Kentucky.

Boar, any age, (Berkshire, Essex, etc.,) Powell & Heck, Waldron, Shelby county \$20
 Sow, any age, Powell & Heck, Waldron, Shelby county 20
 Herd, 1 boar and 5 sows, of any one breed, regardless of age, size or color, all owned by one exhibitor, A. S. Gilmore, Greensburg 40
 Special Prairie Farmer Premium, offered by Prairie Farmer Publishing Company, Chicago, Ill., for the best boar and 2 sows of any breed, a silver dinner caster, Mugg & Seagraves, Center, Howard county, value. 20

Committee—Dick Jones, Columbus; John Davis, Logansport; D. F. Dooks, Liberty.

POULTRY.

•T. W. W. SUNMAN, Superintendent.

CLASS XXIX.—Fowls.

Pair light Brahma fowls, W. C. Shortridge, Indianapolis \$5
 Second premium, Lillson & Robison, Rock Lane 3
 Pair light Brahma chicks, H. C. Green, Broad Ripple 5
 Second premium, H. C. Green, Broad Ripple 3
 Pair dark Brahma fowls, M. H. Conner, Winternowel, Shelby county 5
 Second premium, M. H. Conner, Winternowel, Shelby county 3
 Pair dark Brahma chicks, M. H. Conner, Winternowel, Shelby county 5
 Second premium, M. H. Conner, Winternowel, Shelby county 3
 Pair buff Cochins fowls, D. H. Jenkins, Indianapolis 5
 Pair buff Cochins chicks, D. H. Jenkins, Indianapolis 5
 Second premium, I. N. Barker, Thorntown, Boone county 3

Pair Partridge Cochín fowls, H. C. G. Bals, Indianapolis	\$5
Second premium, J. W. Williams, North Manchester	3
Pair Partridge Cochín chicks, H. C. G. Bals, Indianapolis	5
Second premium, I. N. Barker, Thorntown, Boone county	3
Pair black Cochín fowls, R. Rosencrans, Hope, Shelby county	5
Second premium, R. Rosencrans, Hope, Shelby county	3
Pair black Cochín chicks, R. Rosencrans, Hope, Shelby county	5
Second premium, I. N. Barker, Thorntown, Boone county	3
Pair Langshan fowls, Lilson & Robison, Rock Lane	2
Pair Langshan chicks, Lilson & Robison, Rock Lane	3
Second premium, Lilson & Robison, Rock Lane	2
Pair Plymouth Rock fowls, Sid. Conger, Flat Rock	5
Second premium, Sid. Conger, Flat Rock	3
Pair Plymouth Rock chicks, Sid. Conger, Flat Rock	5
Second premium, Sid. Conger, Flat Rock	3
Pair white Leghorn fowls, Harry Owens, Warsaw	3
Second premium, Elstun & Tobin, Indianapolis	2
Pair white Leghorn chicks, Harry Owens, Warsaw	3
Second premium, Elstun & Tobin, Indianapolis	2
Pair brown Leghorn chicks, Frank Jones, Yorktown, Delaware county	3
Second premium, J. E. Peterson, North Manchester	2
Pair W. F. Black Spanish fowls, Wm. B. Thurston, Indianapolis	3
Pair W. F. Black Spanish chicks, Mrs. M. Thurston, Indianapolis	3
Pair W. C. Black Polish fowls, I. N. Barker, Thorntown, Boone county	3
Pair W. C. Black Polish chicks, I. N. Barker, Thorntown, Boone county	3
Second premium, I. N. Barker, Thorntown, Boone county	2
Pair Haudan fowls, C. F. Mathes, Indianapolis	3
Pair Haudan chicks, C. F. Mathes, Indianapolis	3
Second premium, C. F. Mathes, Indianapolis	2
Pair Silver Hamburg fowls, Dick Nolan, Rock Lane, Johnson county	3
Second premium, Tilson & Robison, Rock Lane, Johnson county	2
Pair Silver Hamburg chicks, Dick Nolan, Rock Lane, Johnson county	3
Second premium, Dick Nolan, Rock Lane, Johnson county	2
Pair Black Breasted Red Game fowl, D. C. Harter, North Manchester	3
Pair Black Breasted Red Game chicks, D. C. Harter, North Manchester	3
Second premium, W. L. Johnson, Indianapolis	2
Pair Black Breasted Red Game Bantam chicks, George Dorsey, Indianapolis	3
Pair Yellow Duck Wing Game Bantam fowls, John Conn, Indianapolis	3
Pair Yellow Duck Wing Game Bantam chicks, Charles Hacker, Indianapolis	3
Pair Golden Seabright Bantam fowls, I. N. Barker, Thorntown, Boone county	3
Second premium, I. N. Barker, Thorntown, Boone county	2
Pair Golden Seabright Bantam chicks, I. N. Barker, Thorntown, Boone county	3
Second premium, I. N. Barker, Thorntown, Boone county	2
Pair Silver Seabright Bantam fowls, I. N. Barker, Thorntown, Boone county	3
Pair turkeys, old birds, T. M. Reveal, Clermont, Marion county	5
Second premium, H. C. Green, Broad Ripple	3

Pair bronze turkeys, hatch of 1882, S. Johnson, Irvington	\$5
Second premium, T. H. Shortridge, Indianapolis	3
Pair white Holland turkeys, old birds, W. A. Ennis, Clermont, Marion county	5
Second premium, W. A. Ennis, Clermont, Marion county	3
Pair of white Holland turkeys, hatch of 1882, W. A. Ennis, Clermont, Marion county	5
Second premium, W. A. Cox, Brightwood, Marion county	3
Pair Embden geese, Tilson & Robison, Rock Lane	5
Second premium, W. A. Ennis, Clermont, Marion county	3
Pair Toulouse geese, H. C. Green, Broad Ripple	5
Second premium, Tilson & Robison, Rock Lane	3
Pair Chinese geese, H. C. Green, Broad Ripple	5
Second premium, W. A. Ennis, Clermont, Marion county	3
Pair Wild geese, W. A. Ennis, Clermont, Marion county	3
Pair Pekin ducks, H. C. Green, Broad Ripple	3
Second premium, Robison & Nolan, Rock Lane	2
Pair Rouen ducks, H. C. G. Bals, Indianapolis	3
Second premium, H. C. G. Bals, Indianapolis	2
Pair Aylesbury ducks, Tilson & Robison, Rock Lane	3
Second premium, Tilson & Robison, Rock Lane	2
Heaviest live turkey, T. M. Reveal, Clermont, Marion county	5
Heaviest cock, or cockerel, W. C. Shortridge, Indianapolis	3
Heaviest hen, or pullet, J. W. Williams, North Manchester	3
Brood chicks under 1 week old, pure blood, W. C. Shortridge, Indianapolis	3
Black Javas, chicks, G. B. Stapp, Hope	8
Muscovy duck, Mrs. R. S. Russell, Zionsville, Boone county	
Ferrets, John Gris, Indianapolis	

Committee—Dan. White, New London, Ohio.

AGRICULTURAL DEPARTMENT.

J. K. O'NEAL, Superintendent.

(None but actual producers could compete in Classes 30, 31 and 32.)

CLASS XXX.—*Vegetables.*

Three cauliflowers, H. T. Adams, Logansport, Cass county	\$2
Second premium, H. T. Adams, Logansport, Cass county	1
Six broccoli, H. T. Adams, Logansport, Cass county	2
Second premium, John Marvel, Royalton	1
Six vegetable eggs, Henry P. Speer, Zionsville, Boone county	2
Second premium, E. A. Eichhoff, Indianapolis	1
Six cucumbers, John Marvel, Royalton	2
Second premium, W. Spilman, Indianapolis	1

Peck of white beans, John Marvel, Royalton	\$2
Second premium, J. H. Thomas, Lawrence, Marion county	1
Two quarts Lima beans, H. T. Adams, Logansport, Cass county	2
Second premium, John Marvel, Royalton	1
Half gallon garden peas, dry, J. H. Thomas, Lawrence, Marion county	2
Second premium, H. T. Adams, Logansport, Cass county	1
Half gallon field peas, dry, John Marvel, Royalton	2
Second premium, J. H. Thomas, Lawrence, Marion county	1
Half peck peppers for pickling, H. T. Adams, Logansport, Cass county	2
Second premium, John Marvel, Royalton	1
Peck tomatoes, H. T. Adams, Logansport, Cass county	2
Second premium, John Marvel, Royalton	1
Collection of tomatoes, John Marvel, Royalton	5
Second premium, H. T. Adams, Logansport, Cass county	3
Half dozen ears green sweet corn, J. H. Thomas, Lawrence, Marion county	2
Second premium, John Marvel, Royalton	1
Half peck dry sweet corn, John Marvel, Royalton	2
Second premium, J. H. Thomas, Lawrence, Marion county	1
Three squashes, any kind, G. W. Legg, Waldron, Ill.	2
Second premium, H. T. Adams, Logansport, Cass county	1
Three pumpkins, H. T. Adams, Logansport, Cass county	2
Second premium, S. Johnson, Irvington, Marion county	1
Three drum-head cabbages, John Marvel, Royalton	2
Second premium, J. H. Thomas, Lawrence, Marion county	1
Three flat Dutch cabbages, John Marvel, Royalton	2
Second premium, H. T. Adams, Logansport, Cass county	1
Three heads cabbage, any kind, John Marvel, Royalton	2
Second premium, H. T. Adams, Logansport, Cass county	1
Dozen stalks celery, D. Ellwanger, Indianapolis	2
Second premium, H. P. Speer, Zionsville, Boone county	1
Collection vegetables by one amateur exhibitor, H. T. Adams, Logansport, Cass county	10
Second premium, John Marvel, Royalton	5
Collection vegetables by one professional exhibitor, D. Ellwanger, Indianapolis.	10

MISCELLANEOUS.

One gourd, Israel Troub, Indianapolis

Committee—C. G. Parker, Lafayette; J. S. Densmore, Bloomington; J. L. Sailors, Wabash.

CLASS XXXI.—Root Crops.

Half bushel turnips, J. H. Thomas, Lawrence, Marion county	\$2
Second premium, H. T. Adams, Logansport, Cass county	1
Dozen parsnips, J. H. Thomas, Lawrence, Marion county	2
Second premium, H. T. Adams, Logansport, Cass county	1

Dozen radishes, H. T. Adams, Logansport, Cass county	\$2
Second premium, John Marvel, Royalton	1
Dozen carrots, J. H. Thomas, Lawrence, Marion county	2
Second premium, John Marvel, Royalton	1
Dozen roots salsify, H. T. Adams, Logansport, Cass county	2
Second premium, John Marvel, Royalton	1
Dozen horseradishes, J. H. Thomas, Lawrence, Marion county	2
Second premium, D. Ellwanger, Indianapolis	1
Half dozen red beets, J. H. Thomas, Lawrence, Marion county	2
Second premium, John Marvel, Royalton	1
Half dozen turnip beets, John Marvel, Royalton	2
Second premium, H. T. Adams, Logansport, Cass county	1
Bushel sugar beets, J. H. Thomas, Lawrence, Marion county	2
Second premium, Robt. Mitchell, Princeton, Gibson county	1
Half peck red onions, J. H. Thomas, Lawrence, Marion county	2
Second premium, S. H. Hays, Elizabethtown, Ohio	1
Half peck yellow onions, H. P. Speer, Zionsville, Boone county	2
Second premium, S. H. Hays, Elizabethtown, Ohio	1
Half peck white onions, J. H. Thomas, Lawrence, Marion county	2
Second premium, H. P. Speer, Zionsville, Boone county	1
Dozen turnip radishes, H. T. Adams, Logansport, Cass county	1
Second premium, J. H. Thomas, Lawrence, Marion county	50c.
Dozen long radishes, H. T. Adams, Logansport, Cass county	1
Second premium, J. Marvel, Royalton	50c.
Display of onions in variety and quality, H. T. Adams, Logansport, Cass county	3
Second premium, Thomas Thatcher, Indianapolis	1
<i>Committee</i> —Charles G. Parker, Lafayette; J. S. Densmore, Bloomington; J. L. Sailors, Wabash.	

CLASS XXXII.—Potatoes.

Peck pink peach blows, J. H. Thomas, Lawrence, Marion county	\$2
Second premium, J. Marvel, Royalton	1
Peck white peach blows, J. Marvel, Royalton	2
Second premium, S. H. Hays, Elizabethtown, O	1
Peck early rose, J. Marvel, Royalton	2
Second premium, S. H. Hays, Elizabethtown, O	1
Peck snowflakes, H. T. Adams, Logansport, Cass county	2
Second premium, W. A. Ennis, Clermont, Marion county	1
Peck pink eyes, W. A. Ennis, Clermont, Marion county	2
Second premium, J. Marvel, Royalton	1
Peck Shaker russets, Thos. Thatcher, Indianapolis	2
Second premium, W. A. Ennis, Clermont, Marion county	1
Peck Peerless, J. Marvel, Royalton	2
Second premium, H. T. Adams, Logansport, Cass county	1

Half bushel sweet potatoes, J. J. Johnson, Castleton	\$2
Second premium, T. Wilson, Indianapolis	1
Peck early potatoes, any kind, H. T. Adams, Logansport, Cass county	2
Second premium, J. Marvel, Royalton	1
Peck late potatoes, any kind, H. T. Adams, Logansport, Cass county	2
Second premium, J. A. Bruce, Indianapolis	1
Peck Beauty of Hebron, H. A. Adams, Logansport, Cass county	2
Peck Victor, A. B. Shellendy, Danville, Hendricks county	2
Second premium, H. T. Adams, Logansport, Cass county	1
Peck Burbank seedling, S. H. Hays, Elizabethtown, Ohio	2
Second premium, W. Spillman, Indianapolis	1
Peck Mammoth Pearl, J. D. Smith, Danville, Hendricks county	2
Second premium, W. A. Clinger, Zionsville, Boone county	1
Collection of Irish potatoes, not less than 5 varieties, H. T. Adams, Logansport, Cass county	5
Second premium, Thos. Thatcher, Indianapolis	2

MISCELLANEOUS.

White Star, W. A. Conger, Zionsville, Boone county (first)	
Early Ohio, G. Cowing, Muncie, Delaware county (second)	
<i>Committee</i> —C. G. Parker, Lafayette; J. S. Densmore, Bloomington; J. L. Sailors, Wabash.	

CLASS XXXIII.

(Grain in this class must have been grown within the year exhibited.)

Half bushel Early Dent field corn in ear, Zachariah White, Lawrence, Marion county	\$5
Second premium, S. H. Hays, Elizabethtown, Ohio	2
Half bushel yellow corn in ear, J. A. Heavenridge, Liberty, Union county	5
Second premium, W. A. Robins & Co., Greensburg, Decatur county	2
Half bushel white corn in ear, J. A. Heavenridge, Liberty, Union county	5
Second premium, W. A. Robins & Co., Greensburg, Decatur county	2
Half bushel corn, any color, Z. White, Lawrence, Marion county	5
Second premium, J. Marvel, Royalton	2
Half bushel hominy corn, S. H. Hays, Elizabethtown, Ohio	2
Display and greatest variety of corn, all kinds, not less than half gallon each variety, W. A. Ennis, Clermont, Marion county	10
Display and greatest variety of wheat, all kinds, not less than half gallon of each variety, W. A. Ennis, Clermont, Marion county	10
Half bushel white wheat, W. A. Ennis, Logansport, Cass county	5
Second premium, W. A. Ennis, Logansport, Cass county	2
Half bushel red wheat, John Marvel, Royalton	5
Second premium, S. H. Hays, Elizabethtown, Ohio	2
Half bushel spring wheat, W. A. Ennis, Clermont, Marion county	5
Second premium, W. A. Ennis, Clermont, Marion county	2

Half bushel spring wheat, W. A. Ennis, Clermont, Marion county.	\$5
Second premium, W. A. Ennis, Clermont, Marion county	2
Half bushel rye, E. A. Eickhoff, Indianapolis	2
Half bushel oats, O. W. Vorhis, Lawrence, Marion county	2
Half bushel barley, S. H. Hays, Elizabethtown, O.	2
Half bushel flax seed, W. A. Ennis, Clermont, Marion county.	2
Half bushel millet seed, S. H. Hays, Elizabethtown, O.	2
Half bushel timothy seed, W. A. Ennis, Clermont, Marion county.	2
Half bushel orchard grass seed, W. A. Ennis, Clermont, Marion county	2
Half bushel Kentucky blue grass seed, W. A. Ennis, Clermont, Marion county	2
Half bushel English blue grass seed, W. A. Ennis, Clermont, Marion county	2
Half bushel red top grass seed, W. A. Ennis, Clermont, Marion county	2
Half bushel red clover seed, W. A. Ennis, Clermont, Marion county.	2
Half bushel English clover seed, W. A. Ennis, Clermont, Marion county.	2
Sample, 10 pounds broom corn, W. A. Ennis, Clermont, Marion county	2
Collection grain and vegetables by any county or local society, Lawrence District Fair Association, Lawrence, Marion county	25

Committee—C. G. Parker, Lafayette, Ind.; J. S. Densmore, Bloomington, Ind.; J. L. Sailors, Wabash, Ind.

CLASS XXXIV.—Butter, Cheese and Honey.

Ten pounds creamery butter, C. M. Coats & Co., Indianapolis . Diploma and	\$10
Five pounds dairy butter, Beech Grove Farm, Ingallston, Marion county	5
Second premium, W. H. Hartman, Southport, Marion county	3
Thirty pounds factory cheese, C. M. Coats & Co., Indianapolis . Diploma and	10
Ten pounds dairy cheese, C. M. Coats & Co., Indianapolis	5
Ten pounds comb honey, in packages of 1 pound or more, Daugherty & McKee, Indianapolis.	5
Ten pounds or more one-pound packages of extracted honey, Daugherty & McKee, Indianapolis	5
Crate of honey in the comb, in most marketable shape, Daugherty & McKee, Indianapolis	6
Display of honey, back comb and extracted, Daugherty & McKee, Indianapolis	5
Display of wax, Daugherty & McKee, Indianapolis	2
Machine for extracting honey, Daugherty & McKee, Indianapolis.	Diploma
Display of bee-keeping supplies, Daugherty & McKee, Indianapolis.	Diploma

Committee—Chas. G. Parker, Lafayette; J. S. Densmore, Bloomington; J. L. Sailors, Wabash.

CLASS XXXV.—Cured Meats, Groceries, Flour, Crackers.

Assortment of crackers, Indianapolis Steam Cracker Company, Indian- apolis	Diploma
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MISCELLANEOUS.

Coffee, roasted, E. Severing & Co., Baltimore, Md First premium
Committee—Chas. G. Parker, Lafayette; J. S. Densmore,
 Bloomington; J. L. Sailors, Wabash.

HORTICULTURAL.

JOSEPH GILBERT, Superintendent.

CLASS XXXVI.—*Amateur List.*

Twenty varieties of apples, A. B. Shellendy, Danville, Hendricks county . .	\$15
Twelve varieties of apples, S. H. Hays, Elizabethtown, Ohio	10
Six varieties of apples, S. H. Hays, Elizabethtown, Ohio	5
Plate Maiden's Blush, Levi Kinzer, Carmel	1
Plate Smith Cider, W. Newhouse, Lawrence, Marion county	1
Plate Ben Davis, A. B. Shellendy, Danville, Hendricks county	1
Plate Rome Beauty, A. B. Shellendy, Danville, Hendricks county	1
Plate Winesap, S. H. Hays, Elizabethtown, Ohio	1
Plate Rambo, R. Johnson, Castleton	1
Plate yellow Bell-flower, A. B. Shellendy, Danville, Hendricks county	1
Plate Fallawater --Tulfehooken, A. B. Shellendy, Danville, Hendricks county	1
Plate white Pippin, S. H. Hays, Elizabethtown, Ohio	1
Plate Baldwin, A. B. Shellendy, Danville, Hendricks county	1
Plate Vandever Pippin, W. B. Flick, Lawrence, Marion county	1
Plate Northern Spy, S. H. Hays, Elizabethtown, Ohio	1
Plate King of Tompkins County, S. H. Hays, Elizabethtown, Ohio	1
Three varieties of peaches, Jacob P. Powers, Morgantown, Morgan county . .	3
One variety of peaches, Alex. Metzger, Indianapolis	2

GRAPES GROWN IN OPEN AIR.

Three varieties of grapes, S. H. Hays, Elizabethtown, Ohio	3
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QUINCES.

Show of quinces not less than 12 specimens, Mrs. W. H. Maghee, Princeton .	3
Display of fruit of all kinds, W. B. Flick, Lawrence, Marion county	25
Display of fruit by any county or local society, Hendricks county, Danville .	25
Second Premium, Lawrence District Fair Association, Lawrence	15
Three watermelons, G. W. Legg, Waldron, Ill	5
Second premium, Thomas Thatcher, Indianapolis	2
Three nutmeg melons, John Marvel, Royalton.	3
Second premium, Thomas Thatcher, Indianapolis	2
Largest striped Gipsy melon, Thomas Thatcher, Indianapolis.	2
Largest icing melon, Thomas Thatcher, Indianapolis.	2
Collection melons of all kinds, Thomas Thatcher, Indianapolis	10

Committee—B. F. Maxwell, N. Furnas, H. Mankedick.

CLASS XXXVII.—Professional List.

APPLES.

Twenty varieties of apples, E. A. Eickhoff, Indianapolis	Diploma and	\$15
Twelve varieties of apples, E. A. Eickhoff, Indianapolis	Diploma and	10
Six varieties of apples, E. A. Eickhoff, Indianapolis.	Diploma and	5

PEARS.

Four varieties of autumn pears, E. A. Eickhoff, Indianapolis. . .	Diploma and	5
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GRAPES.

Five varieties of grapes, E. A. Eickhoff, Indianapolis	Diploma and	5
Three varieties of grapes, E. A. Eickhoff, Indianapolis.	Diploma and	3
One variety of grapes, ten clusters, E. A. Eickhoff, Indianapolis . .	Diploma and	2
Display of fruits of all kinds, E. A. Eickhoff, Indianapolis . . .	Diploma and	25
Collection of nursery stock, arranged for exhibition adjoining Floral Hall, Albertson & Hobbs, Bridgeport, Marion county	Diploma and	15
Second premiums, E. A. Eickhoff, Indianapolis	Diploma and	10

Committee—B. F. Maxwell, A. Furnas, H. Mankedick.

CLASS XXXVIII.—Flowers and Plants.—Professional List.

General collection of plants, Rieman Bros., Indianapolis	\$20
Second premium, Bertemann Bros., Indianapolis	10
Collection foliage plants, Rieman Bros., Indianapolis	6
Collection of lycopods and ferns, Rieman Bros., Indianapolis	6
Display and variety of climbers, Rieman Bros., Indianapolis	5
Collection of begonias, Rieman Bros., Indianapolis	6
Collection of cacti, aloes, agaves, Lewis Bros., Indianapolis	8
Second premium, Rieman Bros., Indianapolis	4
Collection of geraniums, Rieman Bros., Indianapolis	6
Three rustic stands, filled, Rieman Bros., Indianapolis	\$6
Second premium, Lewis Bros., Indianapolis	3
Three hanging baskets, filled, Rieman Bros., Indianapolis	3
Second premium, Lewis Bros., Indianapolis	2
Collection of palms, Bertmann Bros., Indianapolis	10
Second premium, Rieman Bros., Indianapolis	5
Collection of aloecasias and caladiums, Rieman Bros., Indianapolis	10
Second premium, Bertmann Bros., Indianapolis	5
Collection of cannas, Bertmann Bros., Indianapolis	5
Arranged Wardian case, Rieman Bros., Indianapolis.	4
Floral display by any one individual or firm, Rieman Bros., Indianapolis . .	200
Second premium, Lewis Bros., Indianapolis	100
Collection of loose cut flowers, James Vick, Rochester, N. Y	10
Ten funeral designs, G. Lang, Indianapolis	20

Committee—L. Heinl, C. M. Hobbs, Mrs. T. S. Teas.

FLOWERS AND PLANTS—Amateur List.

Rustic stand, filled, Mrs. G. A. Danley, Indianapolis	\$2
Hanging basket, filled, Mrs. G. A. Danley, Indianapolis	2
Collection of cut flowers, Mrs. D. Rogers, Greencastle, Putnam county	8
Collection cut geraniums, Mrs. D. Rogers, Greencastle, Putnam county	4
Second premium, Mrs. G. A. Danley, Indianapolis.	2
Collection cut roses, Mrs. G. A. Danley, Indianapolis	8
Second premium, Mrs. D. Rogers, Greencastle, Putnam county	4
Collection cut verbenas, Mrs. D. Rogers, Greencastle	4

Committee—L. Heintz, C. M. Hobbs, Mrs. T. S. Teas.

GEOLOGY, NATURAL HISTORY, ETC.

PROF. A. W. BRAYTON, Superintendent.

CLASS XXXIX.

General collection of fossils, Mrs. J. D. Campbell, Indianapolis.	\$8
Second premium, Fletcher M. Noe, Indianapolis.	5
General collection minerals, Mrs. J. D. Campbell, Indianapolis	Diploma
General collection shells, Natural Science Association, Indianapolis	Diploma
Collection fresh water shells, Natural Science Association, Indianapolis	Diploma
Classified collection of birds and animals, illustrating the natural history of the State, Mrs. Jessie Brayton, Indianapolis	20
Second premium, Fletcher M. Noe, Indianapolis.	15
Third premium, Natural Science Association, Indianapolis	10
Collection diurnal lepidoptera, Fletcher M. Noe, Indianapolis	5
Collection nocturnal lepidoptera, Fletcher M. Noe, Indianapolis	5
Collection insects, Natural Science Association, Indianapolis	3
Second premium, Fletcher M. Noe, Indianapolis	2
One of the best cases of insects, W. J. Chambers, Kent, Jefferson county, a diploma. Recommended by the committee.	
Collection botanical specimens, Natural Science Association, Indianapolis,	Diploma and 3
Second premium, Libbie Murray, Indianapolis	Diploma and 2
Third premium, Louis Laobe, Indianapolis	Diploma and 1
Fourth premium, L. S. Shuler, Indianapolis	Diploma
Collection American wood, not less than twenty-five varieties, Fletcher M. Noe, Indianapolis.	Diploma
Collection coins and medals, Louis Woerner, Indianapolis	5
Second premium, Fletcher M. Noe, Indianapolis	2
Aquarium stocked with fish, Natural Science Association, Indianapolis	5

Collection Mound Builders (Stone Age) implements, Mrs. J. D. Campbell, Indianapolis	\$10
Second premium, Fletcher M. Noe, Indianapolis	8
<i>Committee</i> —Prof. O. P. Hay, Butler University; W. C. Latta, Purdue University.	

CLASS XI.

Block Coal, Cobb & Branham, Indianapolis	Diploma
Caking Coal, Cobb & Branham, Indianapolis	Diploma
Cannel Coal, Cobb & Branham, Indianapolis	Diploma
Coke, Cobb & Branham, Indianapolis	Diploma
Collection and variety of coal from any one county in Indiana, A. B. Myers & Co., Indianapolis	8
<i>Committee</i> —John N. Hurty, Chemist.	

WOMAN'S DEPARTMENT.

MRS. MARY E. HAGGART, Superintendent.

CLASS XLI.—Domestic Manufactures.

All-wool coverlet, Mrs. E. B. Kirk, Shelbyville, Shelby county	\$2
Cotton coverlet, Mrs. M. F. Shearer, Indianapolis	2
Pair blankets, Mrs. S. Harlan, Greensburg	3
Counterpane, Annie Vogle, Indianapolis	2
Counterpane, knit, Mrs. H. R. Gillette, Indianapolis	2
Counterpane, crochet, Miss Maggie Rabb, Rising Sun	2
Pound wool yarn, Emily Wardwell, Fairmount, Grant county	1
Ten yards jeans, Emily Wardwell, Fairmount, Grant county	2
Ten yards lindsey, J. Leibhardt, Knightstown	1
Ten yards plain flannel, Mrs. J. Leibhardt, Knightstown	2
Ten yards plaid flannel, Mrs. J. Leibhardt, Knightstown	1
Ten yards rag carpet, Mrs. Nancy Custer, Indianapolis	2
Pound flax thread, Mrs. S. Harlan, Greensburg	1
Worsted quilt, Mrs. T. J. Gist, Terre Haute, Vigo county	2
Second premium, Mrs. M. A. White, Indianapolis	1
Silk quilt, Mrs. Dr. Sutherland, Indianapolis	3
Second premium, Miss Julia Minnich, Indianapolis	2
Calico quilt, Mrs. Amanda Warner, Brazil, Clay county	2
Second premium, A. B. Bossman, Indianapolis	1
Floor mat, worsted, Paulina Coleseott, Shelbyville	2
Rug, Mrs. L. F. Bryon, Lebanon	2
Second premium, Rosa Myers, Indianapolis	1
Tufted door mat, Mrs. Dr. Stewart, Anderson	1
Canvas door mat, Mrs. Sarah Scudder, Lafayette	1

NON-ENUMERATED.

Velvet quilt, Mrs. Levinson, first premium, Shelbyville.

Committee—M. F. Hinman, Columbus, Ind.; E. S. Robinson.

CLASS XLII.

Infants' knit or crochet socks, Mrs. A. B. Bosserman, Indianapolis	\$1
Pair knit or crochet mittens, Mrs. Wm. Hubbard, Indianapolis	1
Pair woolen stockings or socks, hand knit, Mrs. H. H. Schmitt, Brownsville, Tennessee	1
Pair cotton stockings or socks, hand-knit, Mrs. C. C. Burns, Greensburg	1
Pair linen stockings, hand-knit, S. Harlan, Greensburg	1
Pair thread stockings, hand-knit, Mrs. Harlan, Greensburg	1
Knit or crochet shawl, Mrs. A. B. Bosserman, Indianapolis	2
Knit or crochet slipper, Mrs. Kate Walker, Indianapolis	1
Knit or crochet hood, Jessie Hughs, Indianapolis	1
Thread crochet lady cap, Mrs. Maggie Morris, Knightstown	1
Knit or crochet fascinator, Mrs. A. M. Stratford, Indianapolis	1
Knit sacque, Mrs. W. H. McGhee, Princeton	1
Crochet sacque, Mrs. Sarah Scudder, Lafayette	1
Knit or crochet lady's scarf, Mrs. E. T. Moore, Indianapolis	1
Knit or crochet gentleman's scarf, Mrs. R. H. Homer, Knightstown	2
Crochet cotton tidy, Mrs. Phoebe Vorhis, Clayton	1
Crochet worsted tidy, Mrs. S. Harlan, Greensburg	1
Afghan, Mrs. Sarah Hodson, Anderson	3
Second premium, Mrs. Sophia Grove, Anderson	2
Afghan, infant's, Mrs. Mary V. Rorison, Indianapolis	2
Second premium, Mrs. Sophia Grove, Anderson	1
Specimen fancy knitting, Mrs. Dr. Stewart, Anderson	1
Display crochet buttons, Mrs. M. F. Owens, Indianapolis	1

Committee—M. F. Hinman, Columbus, Ind.; E. S. Robinson.

CLASS XLIII.

Point lace display, Hessie Maxwell, Indianapolis	\$5
Point lace specimen, HESSIE Maxwell, Indianapolis	3
Second premium, Miss Julia Minnich, Indianapolis	2
Guipure lace, Mrs. H. H. Schmitt, Brownsville, Tennessee	3
Pillow lace specimen, Alice McQuiddy, Indianapolis	2
Darning on net, specimen, Mrs. E. M. Rittenhouse, Indianapolis	2
Second premium, Mrs. A. M. Stratford, Indianapolis	1
Appique lace specimen, Mrs. M. Posz, Shelbyville, Shelby county	2
Crochet lace display, Sadie Brandt, Indianapolis	2
Knit lace display, May Minnich, Indianapolis	2
Tatting display, Mrs. W. P. Diggs, Wentzville, Missouri	2

Second premium, E. J. Marsee, Indianapolis	\$1
Breton lace display, Mrs. E. M. Rittenhouse, Indianapolis	2
Second premium, Mrs. E. H. Woodbridge, Indianapolis	1
Macrame lace display, Mrs. C. C. Burns, Greensburg	2
Second premium, Mrs. Grafenstein, Indianapolis	1
Lace curtains, home-made, Mrs. J. D. Brown, Indianapolis	2

Committee—M. F. Hinman, Columbus, Ind.; E. S. Robinson.

CLASS XLIV.—Embroidery and Braiding..

Embroidery, with linen floss specimen, E. J. Marsee, Indianapolis	\$2
Second premium, Mrs. H. H. Smith, Brownsville, Tenn.	1
Embroidery, yoke and sleeves, Mrs. Sophia Groves, Anderson	2
Second premium, Mrs. S. Harlan, Greensburg	1
Embroidery, night dress, Mrs. M. Posz, Shelbyville, Shelby county	2
Embroidery, child's dress, Mary E. Boyer, Circleville, Ohio	2
Second premium, Sadie Brandt, Indianapolis	1
Embroidery, table set, Mrs. C. C. Burns, Greensburg	2
Embroidery, bed set, Mrs. C. B. Muchmore, Shelbyville, Shelby county	2
Embroidery, handkerchief, Mrs. S. Harlan, Greensburg	1
Embroidery, silk specimen, Mrs. C. C. Burns, Greensburg	2
Second premium, Lettie Hartly, Indianapolis	1
Embroidery, silk stockings, Mrs. H. H. Schmitt, Brownsville, Tenn	1
Embroidery, silk sacque, Mrs. H. H. Schmitt, Brownsville, Tenn	2
Embroidery, silk skirt, Mrs. S. Harlan, Greensburg	2
Embroidery, infant's shawl, Mrs. A. B. Yohn, Indianapolis	2
Second premium, Mrs. Sophia Groves, Anderson	1
Embroidery, skirt, worsted, Mrs. S. Harlan, Greensburg	2
Embroidery, table cover, Miss Mollie Landers, Indianapolis	3
Second premium, Mrs. J. C. Perry, Indianapolis	2
Embroidery, ottoman cover, Jessie Hughes, 819 N. Meridian street, Indianapolis	2
Second premium, Edith Heitkam, Indianapolis	1
Embroidery, chair cover, Jennie Swift, Connersville	2
Embroidery, chair cushion, Mrs. M. Posz, Shelbyville	2
Embroidery, sofa cushion, Miss Rose Ferguson, Indianapolis	2
Second premium, Miss Mollie Landers, 204 N. Pennsylvania street, Indianapolis	1
Embroidery, toilet set, Mrs. J. E. Howe, Muncie	2
Second premium, Jennie Swift, Connersville	1
Embroidery, pin cushion, Mrs. H. W. McGhee, Princeton	1
Embroidery, slippers, Miss Rose Ferguson, Indianapolis	2
Second premium, Jennie Swift, Connersville	1
Embroidery, scarf, Mrs. A. Sammons, Indianapolis	1
Embroidery, bead, specimen, Mrs. E. B. Kirk, Shelbyville	2

Second premium, Mrs. J. McCune, Anderson	\$1
Embroidery, applique, specimen, Mrs. A. M. Robertson, Indianapolis	2
Second premium, Mrs. J. Leibhardt, Knightstown	1
Embroidery, outline, display, Mrs. E. B. Kirk, Shelbyville	2
Embroidery, outline, specimen, L. L. Griffis, Connersville	1
Embroidery, Kensington, specimen, L. M. Vinnedge, Indianapolis	3
Second premium, Miss Minnie Hanneman, Indianapolis	2
Embroidery, tapestry, display, Mrs. E. J. Tarlton, Indianapolis	3
Embroidery, tapestry, specimen, Mrs. E. J. Tarlton, Indianapolis	2
Embroidery, art in colors, display, Mrs. Mary V. Rorison, Indianapolis	Diploma
Embroidery, art in colors, specimen, Mrs. A. M. Robertson, Indianapolis	3
Second premium, Mrs. Sue Ewing, New Home	2
Embroidery, chenille, display, Edith Heitkam, 230 N. Alabama street, Indianapolis	Diploma
Embroidery, chenille, specimen, Edith Heitkam, Indianapolis	3
Second premium, Mrs. J. C. Staughan, Indianapolis	2
Embroidery, rick-rack work, display, Mrs. Isaac Kahn, Indianapolis	2
Second premium, Miss Mary Heron, Indianapolis	1
Braiding, display, Mrs. C. C. Burns, Shelbyville	2
Braiding, specimen, Mrs. S. Harlan, Greensburg	1

NON-ENUMERATED.

Embroidered lambrequin, Mrs. Dr. Bobbs, Indianapolis	Diploma recommended
Crape shawl, Mrs. I. Maxwell, Indianapolis	Diploma recommended
<i>Committee</i> —Mrs. A. E. Kimball, Mrs. A. F. Armstrong.	

CLASS XLV.—Sewing, Machine and Hand.

Machine work, 5 articles, Mrs. S. Harlan, Greensburg	\$3
Machine work, shirt, Mrs. M. Posz, Shelbyville	1
Machine work, calico dress, Mrs. Sophia Groves, Anderson	1
Hand sewing, garment, Mrs. M. Posz, Shelbyville	1
Hand sewing, shirt, Mrs. C. M. Smith, Indianapolis	1
Dress, worsted or silk, Mrs. Kilgore, Anderson	Diploma and
Gents cloth coat, made by a woman, Mrs. H. R. Homer, Knightstown	5
Pair pants, made by a woman, Mrs. H. R. Homer, Knightstown	2
Vest, made by a woman, Mrs. M. Posz, Shelbyville	1
Boys' suit, Mrs. H. R. Homer, Knightstown	2
Darning, on old garments, Mrs. A. Conner, Indianapolis	1
Patching, on old garments, Mrs. H. R. Homer, Knightstown	1
Button holes, displayed on different materials, Mrs. T. J. Gist, Terre Haute	2
Second premium, H. L. Thompson, Indianapolis	1
Hem-stitching, specimen, Mrs. S. A. Hall, Indianapolis	1

NON-ENUMERATED.

Kitchen apron, Mrs. Geo. Heog, Logansport	White ribbon
<i>Committee</i> —Mrs. A. E. Kimball, Mrs. M. A. Armstrong.	

CLASS XLVI.—Miscellaneous.

Wax flowers, Ellen Newman, Indianapolis	\$3
Second premium, Mrs. Dr. McJohnston, Pimento	2
Wax fruit, Mrs. Heitkam, Indianapolis	3
Wax work, ornamental, Fannie Naveir, Indianapolis	3
Decalcomania or transfer work display, Mrs. E. B. Kirk, Shelbyville	1
Scrap picture, Mrs. Laura H. Elson, Indianapolis	1
Bead work display, Mrs. E. B. Kirk, Shelbyville	2
Card receiver, Mrs. W. A. Ford, Greensburg	1
Handkerchief box, Mrs. Rose Furguson, Indianapolis	2
Second premium, Jessie Hughs, Indianapolis	1
Glove box, Mrs. Sarah Scudder, Lafayette	1
Splatter work on card board, specimen, Mrs. Ella O. Johnson, Indianapolis	1
Splatter work on cloth, specimen, Mrs. H. R. Homer, Knightstown	1
Sea moss ornament, Mrs. A. M. Noe, Indianapolis	2
Wood moss ornament, Mrs. M. Posz, Shelbyville	2
Skeleton leaves and ferns, Mrs. McJohnson, Pimento	2
Toilet cushion, not embroidered, Jessie Hughs, Indianapolis	2
Second premium, Miss Mary E. Hubbard, Indianapolis	1
Sofa pillow, not embroidered, Mrs. E. F. Moore, Indianapolis	2
Second premium, Miss Julia Minnick, Indianapolis	1
Lamp mat, fancy, Mrs. H. R. Homer, Knightstown	1
Toilet mats, Jesse Hughs, Indianapolis	2
Infant's nursery basket, Mrs. H. R. Homer, Knightstown	2
Picture tapestry work, Mrs. Al. Taffe, Indianapolis	2
Chair stripes, Jesse Hughs, Indianapolis	2
Lamberquins, L. M. Vinnedge, Indianapolis	2
Tidy, not crochet, Miss M. E. Yohn, Indianapolis	2
Second premium, L. M. Vinnedge, Indianapolis	1
Minerals, collection, named, Alice Fairfield, Indianapolis	3
Shells, collection, named, Mrs. N. F. Thompson, Indianapolis	5
Upholstery work, specimen, Mrs. J. E. Howe, Muncie	3
Laundried shirt, by a woman not in the employ of laundry, Mrs. Dr. Stewart, Anderson	1
Exhibit in silk culture, Neata Wilson, Russellville, Putnam county	5
Second premium, Mrs. E. S. Purdy, Indianapolis	3
Design for dwelling house, by a woman, Mrs. C. E. Buskirk, Indianapolis	2
Badges and regalia, Mrs. W. C. Anderson, Indianapolis Diploma and	3
Painting on silk or satin, display, Miss I. M. Johnson, Indianapolis	5
Second premium, Mrs. E. M. Rexford, Indianapolis	3
Painting on silk or satin, specimen, Miss Libbie Murray, Indianapolis	3
Second premium, I. M. Johnson, Indianapolis	2
Painting on tiles, display, Miss Libbie Murray, Indianapolis	3
Painting on panels, display, Mrs. T. R. Cobb, Indianapolis	3
Painting on wood, display, Miss M. E. Yohn, Indianapolis	5
Second premium, Miss M. E. Robertson, Indianapolis	3

Alto relieve work, designed and executed, display, Mrs. D. O. Christ, Indianapolis	\$5
Etching on cloth, display, Edna Wildman, Indianapolis	1
Painted fan, Mrs. H. R. Homer, Knightstown	1
Painted toilet set, display, Miss Libbie Murray, Indianapolis	1
Painted fancy card, display, Miss Yohn, Indianapolis	2
Painted work, miscellaneous, Miss M. E. Robertson, Oxford, O.	Diploma
Decorated china, display, Miss Mollie Landers, Indianapolis	\$5
Decorated china, specimen, Mrs. H. R. Homer, Knightstown	2
Pottery, made and decorated by exhibitor, display, Miss Mollie Landers, Indianapolis	3
Carved wood work, display, Mrs. B. R. LeFeber, Indianapolis	3
<i>Committee—Pearl E. Tyner, Carrie G. Vawter.</i>	

CLASS XLVIII.—*Culinary Articles.*

(All articles in this class must be strictly home-made, and will be fully tested by taste and sight.)

Butter, five pounds, Mrs. G. A. Danley, Indianapolis	\$5
Second premium, Miss S. Ferris, Indianapolis	3
Bread, loaf of wheat, yeast, Mrs. Hester McCready, Indianapolis	2
Second premium, Mrs. W. A. Ford, Indianapolis	1
Bread, wheat, salt rising, Mrs. G. A. Danley, Indianapolis	2
Second premium, Mary E. Shears, Southport	1
Graham bread, yeast, Mrs. W. H. Voorhes, Lawrence	2
Second premium, M. C. Dawson, Lawrence	1
Graham bread, salt rising, Mrs. G. A. Danley, Indianapolis	2
Second premium, Miss Mollie Clark, Lawrence	1
Bread, corn, Mrs. W. M. Voorhes, Lawrence	2
Second premium, Miss Mollie Clark, Lawrence	1
Rusks, Mrs. W. M. Voorhes, Lawrence	2
Crullers, Mrs. H. M. Noe, Indianapolis	1
Pound cake, Mrs. McCready, Indianapolis	3
Second premium, J. C. Straughn, Indianapolis	2
Fruit cake, Mrs. M. C. Dawson, Lawrence	3
Second premium, Miss Mollie Clark, Lawrence	2
Fancy cake, Anna C. Pyle, Indianapolis	3
Second premium, Stella Rees, Indianapolis	Recommend
Jellies, collection, Mrs. A. M. Stiltz, Indianapolis	3
Second premium, Mrs. W. C. Anderson, Indianapolis	2
Preserves collection, not less than one pint each, Mrs. W. B. Flick, Lawrence	3
Second premium, Mrs. Levi Kenzer, Carmel, Hamilton county	2
Pickles, collection, Mrs. McChesney, Indianapolis	2
Second premium, Mrs. Levi Kenzer, Carmel, Hamilton county	1
Canned fruit collection, not less than one pint each, Mrs. W. M. Voorhes, Lawrence	5

Second premium, Mrs. Levi Kenzer, Carmel	\$3
Maple molasses, half gallon, Mrs. Levi Kenzer, Carmel	1
Dried fruit collection, not less than 1 pound each, Mrs. Levi Kenzer, Carmel	2
Maple sugar, 5 pounds, Mrs. W. A. Ford, Greensburg	1
Tomato catsup, not less than 1 pint, Mrs. J. F. Coborn, Indianapolis	1

Committee—Mrs. M. C. Ingersoll, Mrs. J. W. C. Shultz.

NON-ENUMERATED LIST.

Lambrequin, Mrs. Dr. Bobbs, Indianapolis	White ribbon
Agricultural wreath, Mrs. E. A. Lemon, Indianapolis	White ribbon
Hair wreath, Annie Fisher, Rensselaer, Jasper county	White ribbon
Three corsets, Mrs. Lottie Spicer, Shelbyville	White ribbon
Pair landscapes, from nature, Mrs. Julia Ludington	White ribbon
Painting on tin, Mary Cobb, Indianapolis	White ribbon
The Kellogg French dress cutting, class 47, Taylor system, Mrs. Delia Reiley, Indianapolis	White ribbon

SPECIAL PREMIUMS

Offered by business men and firms, awarded at the annual State Fair, commencing September 25, 1882, under the usual rules and regulations.

WOMEN'S DEPARTMENT—MISCELLANEOUS.

C. C. Koerner, Indianapolis Business College, Bates Block, specimen, business penmanship, Minnie Bacon, Indianapolis, life scholarship in college, worth	\$40
Vajen & New, hardware and cutlery, 64 East Washington street, for crazy pillow, Pauline Colescott, Shelbyville, set knives in case, worth	10
Bowen & Stewart, bookellers and stationers, 18 West Washington street, for display crochet work, Mrs. H. R. Gillette, Indianapolis	Switzerland illustrated
J. C. Shoemaker, Indianapolis Sentinel, for display of portraits in oil, Mrs. Julia Ludington, Indianapolis	10
Chas. Mayer & Co., Toys, Fancy Goods, etc., 29 and 31 West Washington street, for painted plaque, floral design, Mrs. Will Hughes, Indianapolis	5
Thos. Lewis, Florist, 37 to 43 Massachusetts avenue, flower paintings, Mrs. E. F. Moore, plants and seeds to the amount of	5
Johnson & Bennett, Stove Dealers, 62 East Washington street, for display in water color paintings, Mrs. Julia Ludington, Indianapolis, toilet set worth	5
Mrs. C. B. Ingraham, Artist, 265 North Tennessee street, flower painting from nature, Mrs. Ella L. Riley, Indianapolis	1

Committee—Pearl E. Tyner, Carrie G. Vawter.

CHILDREN'S DEPARTMENT.

(This department was open to boys and girls under sixteen years of age at the time of the Fair. Culinary articles were subject to rules governing last class.)

CLASS XLIX.

Loaf wheat bread, yeast, Miss Helen Fields, Indianapolis	\$2
Second premium, Maggie Sullivan, Indianapolis.	1
Loaf wheat bread, salt rising, Miss Lula Pickerell, Indianapolis	2
Second premium, Miss Mollie Ford, Greensburg.	1
Cake, Miss Maud Pickerell, Indianapolis	3
Second premium, Miss Lillian Thompson, Indianapolis	2
Jellies, collection, Miss Minnie Boyd, North Indianapolis	2
Pickles, collection, Miss Annie Marvel, Royalton	1
Hand sewing, chemise, Miss Jennie Gray, Shelbyville	1
Hand sewing, shirt, Miss Jennie Gray, Shelbyville.	1
Hand sewing, garment, Miss Mary Hart, Indianapolis	1
Patching on old garments, display, Miss Minnie Boyd, North Indianapolis.	2
Darning on old garment, Miss Flora Kirk, Shelbyville	2
Button hole display on different materials, Miss Minnie Boyd, North Indianapolis	2
Second premium, Kittie Thompson, Indianapolis	1
Embroidery, darning, on net, Miss Emma Hodson, Anderson	1
Embroidery, worsted, specimen, Miss Jennie Gray, Shelbyville	2
Second premium, Miss Bell Ragan, Clayton	1
Embroidery, silk, specimen, Miss Jennie Gray, Shelbyville	2
Crochet work, display, Hattie Cimber, Indianapolis	2
Second premium, Miss Carrie Rouse, Indianapolis	1
Pair knit stockings, Miss Jennie Shipley, Indianapolis	1
Tidy, Miss Helen Weidle, Indianapolis	2
Second premium, Miss Sadie Parker, Indianapolis	1
Pin cushion, Miss Callie Tarkleson, Anderson	1
Toilet set, Miss Annie Tout, Brownsburg	2
Second premium, Miss Nina Steiner, Knightstown.	1
Picture in needle work, Miss Bertha Loube, Indianapolis	2
Perforated card board work, Miss Nina Steiner, Knightstown.	2
Paper flowers, display, Miss Minnie Boyd, North Indianapolis	2
Second premium, Miss Lulu McJohnston, Pimento	1
Painting on silk or satin, display, Miss Katie Stallard, Morristown	2
Painting on wood, display, Miss Bessie Hendricks, Indianapolis	2
Painting on tiles, display, Miss Bessie Hendricks, Indianapolis	2
Woods, collection, named, Mont. Green, Indianapolis	2
Shells, collection, named, Willie King, Indianapolis	1
Minerals, collection, named, Willie King, Indianapolis	2
Butterflies, collection, A. Rulgger, Indianapolis	2

Collection of stamps, E. T. Wood, Indianapolis	\$1
Collection of curiosities, Willie King, Indianapolis	1
Collection of old coins, Willie King, Indianapolis	2

NON-ENUMERATED.

Scrap book, Miss Nettie Wilson, Indianapolis White ribbon.

SPECIAL PREMIUMS—BOYS' AND GIRLS' WORK.

James H. Rouse, wholesale trunk factory, 10 Louisiana street, girls' outfit, including complete muslin underwear, and walking suit, whole cost not to exceed \$25.00, made by a girl under 18 years of age, Lillie M. Homer, Knightstown, a fine trunk worth	\$25 00
Prof. T. J. McAvoy, Indianapolis school of Elocution and Ooratory, rooms 64 Fletcher & Sharpe's block, for display of plain needle work by a girl under 16 years of age, Miss Duddie Maguire, Indianapolis, Scholarship in school, worth	25 00
Albert Gall, carpet house, 19 West Washington street, for knitting by girl under 13 years old, Carrie Bell, Indianapolis	2 50
Cathcart & Cleland, stationers, 26 East Washington street; for architectural design by boy under 16 years old, Harry Whitman, Indianapolis, gold pen and holder, worth	3 00
Merrill & Meigs, booksellers and stationers, 5 East Washington street; for 100 written words by boy or girl under 16 years of age, Miss Nettie Smith, Indianapolis, Reed's portfolio scrap book, worth	2 50
Mrs. C. B. Ingraham, artist, 265 North Tennessee street; specimen object drawing by a child under 14 years old, Miss Nettie Smith, Indianapolis	1 00

REPORT OF THE
COMMITTEE ON THE SPECIAL MERIT OF UNPREMIUMED ARTICLES.
ENTERED IN BOOKS B. F. AND G.,
AND
EXHIBITED AT THE INDIANA STATE FAIR,
SEPTEMBER, 1882.

SEWING MACHINES.

Though it is but thirty-six years since the lock-stitch sewing machine was patented by Elias Howe, of Cambridge, Mass., yet in no machine for economizing manual labor has there been more improvement in construction, nor a more perfect adaptation to domestic and manufacturing uses; nor has the utility of any modern mechanical contrivance been so universally conceded as that of the sewing machine. The expiration of most of the original patents, and the strong competition between the different manufacturing companies, have greatly reduced the price of the standard sewing machines, and this, in turn, has wonderfully increased the sale. At present, a first-class sewing machine is an indispensable necessity in every well-ordered family. Twenty-six years ago the first sewing machine, making a lock stitch, was exhibited at our State Fair, and this year we have six manufacturing companies, each exhibiting separate machines, and each representing several modifications of its special machine, adapted to the several forms of work. We enumerate these in the order of their entry, giving only the new improvements and devices, which we regard as possessing merit:

White Sewing Machine, exhibited by R. E. Stephens, Agent, Indianapolis:

1. This machine shows an automatic bobbin-winding device, by which the thread is carried regularly from end to end of the bobbin, as spool thread is wound.
2. A band controller, by which, if the band is thrown from the master-wheel, it may be replaced, by an adjusting lever, without handling the band.

3. A button-hole worker, by which a button-hole can be neatly and expeditiously worked, even by an unskilled person.

4. A new embroidery attachment which executes every form of embroidery with more accuracy than it is possible to do it by hand, and it does it rapidly.

The Wheeler & Wilson Co., Indianapolis, represented the old reliable Wheeler & Wilson Sewing Machine, with several new and important improvements and attachments. This machine, from the beginning, used a revolving bobbin instead of a vibrating shuttle; but, if the needle was misplaced in the slightest degree, it either interfered with the bobbin and broke the needle, or, running wide of the bobbin, it missed the stitch.

1. An improvement is made in the bobbin which entirely obviates this difficulty.

2. An improved device for threading the needle and for setting it.

3. A very simple ruffler attachment.

4. The presser foot, corder, braider, hemmer and shirring appendages are attached and detached without turning a screw.

5. A new automatic bobbin winder.

These improvements obviate most of the objections that have been urged against the Wheeler & Wilson Sewing Machine, and place it in the first-class of machines.

Howe Sewing Machine Co., Indianapolis, exhibit the original lock-stitch shuttle machine, but so modified and improved that, save the motion of the shuttle and form of the stitch, but little of the old machine remains. In the "New Improved Howe" the motion is communicated to the needle by a heart-shaped cam on a straight shaft. The shuttle is carried by a single lever moved by a simple cam. The feed is operated by a lever independent of the shuttle or needle. For the adjustment of the feed an index of stitches is attached which enables the seamstress to determine the exact number of stitches per inch without a trial and decision by the eye. Several minor improvements have been introduced which show that the proprietors are determined to maintain the well-earned reputation of the Howe.

Domestic Sewing Machine Co., Indianapolis, exhibited several highly finished machines. The moving parts of these machines have been greatly simplified and correspondingly improved. The needle motion is communicated by an eccentric, and the shuttle and feed movements are from separate levers, worked by an eccentric. All the moving machinery is made of tempered, polished steel, and consequently the machine runs with but little friction.

The Singer Machine Co., Indianapolis, made a fine display of machines for various purposes. The improved family machine has an oscillating shuttle worked by crank motion, and the needle bar is operated by a pitman. To this machine there are button-hole and embroidery attachments, which do work that can not be excelled by the most skillful handicraft. Several large manufacturing machines were exhibited, adapted to the various grades of leather work, heavy tailoring, etc.

The Eldridge Sewing Machine was exhibited by W. F. Iddings, Indianapolis. This is the latest simplification of the sewing machine. A single eccentric on the driving shaft works the shuttle, needle bar and feed. By a simple device the driving pulley slips when the machine is turned backward.

Horton & Blake, Indianapolis, exhibited the Household Sewing Machine, in which all the movements are communicated by means of eccentrics. It has an automatic bobbin winder.

Also, an Este machine with a vibrating shuttle, and a plain Remington machine, fitted for heavy work.

Each of these improved machines has adopted some device to overcome the effect of constant wear, breaking up the smoothness and regularity of the motion. Generally this is effected by making the bearing conical, so that lost motion can be taken up by turning a screw, thus obviating the necessity of sending the machine to the repair shop.

MILLING MACHINERY.

Le Croix Middlings Purifier Co., Le Croix, exhibits a middling purifier with traveling blast—eight-inch range, governed by a reversible screw; the cloth secured without the use of tacks, the tension being effected by screws. A dust collector and a centrifugal sieve is attached, rendering the purifier complete in all its parts.

The same company exhibited a full collection of bolting cloths of every grade, in piece and made up in samples, with all sizes of webbing. Also a compound grading sieve, a scalper and aspirator and a general assortment of milling materials.

Richards & Butler, Indianapolis, made a fine display of mill machinery of various descriptions.

1. A Sturtevant suction blower, for use in planing mills, and a pressure blower for foundry blast, etc. These machines are of Boston manufacture.

2. A wheat brush and bran-duster of excellent workmanship.

3. A portable flouring mill on a wooden husk frame, with 30-inch French burrs, the upper stone being stationery, and the bed-stone revolving. This mill is complete and ready for use.

4. A six reel flour bolt with two conveyers under each reel, the whole machinery driven by combination bevel gearing.

5. Two pairs of chilled iron rollers, one pair corrugated and the other smooth; intending to show the beginning and the end of the roller process of flour manufacture.

6. Line shafting, two and four inches in diameter, 22 feet long, made of wrought iron and very handsomely turned and polished.

The same parties exhibited a planing machine and matcher, of a six-horse power capacity, with all the latest improvements attached. Also, a pony planer, for use in saw mills.

Sinker & Davis, Indianapolis, exhibited a Replogle patent flouring mill, in which the running burr is fastened rigidly on the spindle, and the bed stone sits firmly on a cast iron cylinder, and, when thus adjusted, the stones run close enough to flour without the possibility of the faces touching each other, thus effecting a great saving in the wear of the grinding surfaces. The same parties also showed two flour-

ing mills complete and ready for use—one, a 30-inch pair of burrs, on a wooden husk frame, the stone bed revolving; the other on an iron husk frame, with burrs 36 inches in diameter, the upper one revolving.

Hadley & Son, Indianapolis, displayed quite an array of grinding devices for various purposes, the chief of which were:

1. French Burr Flouring Mill, with portable husk frame. Stones, 22 inches in diameter.

2. Challenge Feed Mill, grinds from 20 to 30 bushels per hour, corn or oats.

3. Combined Sheller and Grinder. This mill can shell 40 bushels of dry corn per hour, and will grind 30 bushels in that time. Both these mills grind by means of chilled iron circles, which may be replaced when they become dull. To do this work will require 4 or 6-horse power steam or water.

4. Big Giant Feed Mill, grinds corn and cobs by means of a revolving chilled iron cone; makes from 30 to 40 bushels of feed per hour; requires an 8-horse power to do this amount of work. Little Giant is substantially the same mill, on a smaller scale, with some immaterial variations in structure.

5. Combined grinder, sheller and crusher. This is a four-horse mill. Grinds eighteen bushels of feed per hour, shelling the corn; or, it crushes the cob and grinds without shelling.

BUGGIES AND CARRIAGES.

C. H. Black, Indianapolis, shows a style of open buggies, plainly trimmed in leather, light, convenient and durable; also, a top buggy finished in the same style. He showed, also, a top buggy trimmed in fine cloth, and highly finished; and a phaeton, cloth trimmed, substantially made, and well finished.

F. Bremmerman, Indianapolis, had on exhibition a phaeton with a newly-patented device to prevent the wheel from locking, in turning. The device is simple, durable and cheap, and may be applied to any buggy, carriage or wagon. It serves a purpose very desirable in driving.

Boyd & Innis, Rushville, had on exhibition a road cart, with a very convenient arrangement for entry and exit. The seat is attached to the hind gate, which is hung on strong hinges, and opens like a door, so that the rider enters from the rear, closes the door, which replaces and locks the seat. All of which is reversed in getting out. By this means, the objection to this class of vehicles, that the wheel is always in the way, is obviated. The general adoption of this device will, no doubt, add much to the popularity of this newly introduced vehicle.

A. J. Johr & Co., Indianapolis, showed a two seated carriage, substantially built, trimmed with cloth, and has nickel-plated mountings; also, two phaetons, one with platform springs, and the other elliptic springs. Both trimmed in cloth and highly finished. The chief merit in this exhibit is its cheapness. The style of the vehicles is modern, the material first class, and the workmanship good, yet the price demanded was certainly below the average market.

J. M. Bohmie, Indianapolis, exhibited two side-bar buggies with an ingenious device to dispense with side motion, so objectionable in this class of springs. They

were handsomely cloth-trimmed and furnished; also, a two-seated, open, sporting wagon, with oil cloth trimmings; likewise, an "Excelsior Road Cart," with springs so adjusted as to equalize the weight, and to break the motion of the horse, so often communicated to the rider in these new conveyances.

Furst & Bradley, Indianapolis, had on exhibition a neat, plain, two-seated open buggy, finished in oil cloth. Also, a side spring top buggy, trimmed with cloth, showing good workmanship in all the departments of work.

Robbins & Garrard, Indianapolis, showed a splendid line of fine carriage work, foremost among which was a landaulette rockaway, trimmed in French kid, with heavy gold-plated mountings. Next a family rockaway, trimmed with very fine cloth, with silver-plated mountings. Also, a curtain rockaway, with silver-plated mountings and cloth trimmings, the driver's seat being finished in leather. These carriages were first-class in every respect, including price. The same parties exhibited a new style four passenger tandem road cart, and a fine cloth-trimmed phaeton on platform springs. Also, a four passenger cabriolet, with the back seat trimmed with cloth and the front with leather, and an open single-seat road buggy, trimmed in goat skin. A pony village cart, and a grocer's delivery wagon finished this complete display of carriage stock. Altogether, it was a very creditable display, out of which a purchaser could hardly have failed to suit himself, both in style and price.

Charles H. Back, Indianapolis, was the exhibitor of a fine four passenger carriage on platform springs and handsomely trimmed with cloth. Also, a piano-box buggy on side-bar springs, and neatly trimmed with cloth. Likewise two cloth-trimmed phaetons—one on platform springs and the other on plain elliptics. An open buggy with piano-box bed, swelled sides and a double perch closed this catalogue.

Columbus Buggy Co., Indianapolis, exhibited a full line of carriage stock, among which we note a fine, cloth-trimmed top buggy, with Brewster side springs; a Surrey wagon, with two cloth-trimmed seats and similar springs; a phaeton and top buggy, both with automatic springs and cloth trimmings; a Whitechapel and spring open buggy; an unpainted top buggy with side bar and end springs, and a road-cart on springs so arranged as to break the motion of the horse. It was trimmed with oil cloth.

Huston Spring Wagon Co., Columbus, Ohio, made a fine display of carriage stock, notable among which were two phaetons made of selected materials and trimmed with very fine blue cloth—one of them was on platform springs, and the other on elliptics; a square piano-box buggy, with fine leather top and Brewster side-bar springs; a top buggy trimmed in cloth, with elliptic springs and a sulky seat; the same with Brewster side-bar springs.

V. M. Backus, Indianapolis, exhibited a two-spring phaeton with leather top and a very wide seat, trimmed with extra fine cloth; a top buggy with elliptic springs and cloth trimmings; a three-seated barouche, with platform springs and cloth-trimmed seats; an open buggy with a leather-trimmed sulky seat; an open buggy, side-bar springs, double seat, trimmed in morocco leather, and a road cart with half springs.

Renick, Curtis & Co., Greencastle, exhibited a combined single and double seated buggy on platform springs, and trimmed in fine blue cloth. The peculiarity of this vehicle is that it is capable of being transformed from a two-seated carriage into a single seated buggy without adding to or taking anything from it. It is an ingenious and convenient contrivance.

The general display of buggies and carriages of every style has not been excelled for number, variety, and general good workmanship at any former exhibition in this State.

MUSICAL INSTRUMENTS.

D. H. Baldwin & Co., Indianapolis, showed a grand display of pianos and organs of various styles, all highly finished and of good workmanship. We note as of special merit, two upright pianos:

1. Manufactured by Decker Bros., is a French grand action instrument of very fine tone.
2. A Steinway upright of excellent tone, and more simple in its movements than the French action. Also, Steinway pony grand piano, and a Decker square piano.

Likewise a display of organs of various sizes and tone, adapted to church, parlor or concert. They are well made, nicely finished and durable.

Horton & Blake, Indianapolis, displayed a large collection of organs, among which we note:

1. A grand chapel organ with 12 stops.
2. A highly finished parlor organ with 9 stops.
3. A parlor organ having 16 stops. Extra finish throughout.
4. Two parlor organs, one with 13, the other with 11 stops.
5. A plain parlor organ with 9 stops.

These instruments were made at Meriden, Connecticut, of the best of material, and are fine toned, and substantial instruments.

FURNITURE.

H. A. Hoffman, Indianapolis, showed five folding lounges, each different in style of finish, but similar in construction. Two were upholstered in silk, two in brussels and one in Turkish hair-cloth. They are elegant, convenient and useful, but rather too fine for every day business.

J. H. Clark & Co., Indianapolis, exhibited the Elbreg Reclining Chair. The inclination of the back is regulated by a bar and ratchet, worked by the sitter without rising. The back can be brought nearly to the horizontal. It is well cushioned and very convenient for sick or lazy persons. The legs are hinged so as to fold together for shipping.

Mogre's Combination Desk Co., Indianapolis, had on exhibition seventeen different styles of office desks, ranging in size and price to suit customers. Among these we noted several novelties:

1. The "Office Queen," with a case of drawers and pigeon-holes in the folding doors, and the same in the body of the desk.
2. The same desk as above, except that the arrangement of doors, pigeon-holes and drawers, is duplicated in the back.
3. A low desk with cylinder top, opening in the middle, and disclosing the internal arrangement of writing table, drawers, etc. The whole group is made of native walnut, highly finished, and speaks well for the skill and ingenuity of the company.

G. W. Hensley, Indianapolis, showed an adjustable arm-rest for a writing table. A very convenient device—simple and cheap.

Flanner & Hommoun, Indianapolis, had on exhibition a display of extravagantly fine burial caskets, among which we observed a casket covered with black embossed silk and lined with white satin, embroidered by hand; and one with a covering of very fine white princess cloth, trimmed in chenille and lined with plain white satin; and also a child's casket, covered with white tufted satin, with plain white satin lining.

Beside these, this firm furnishes plain rosewood and walnut coffins for us, "the common people."

S. L. Warner, Indianapolis, displayed a handsome line of burial cases to suit every demand. Of these there was an ornamented metallic case (iron), very heavy and secure against grave burglars, and also twelve cloth covered caskets, with silver and black mounting; likewise three white velvet and silk covered cases, handsomely trimmed and mounted. The entire exhibit is of home manufacture.

Charles E. Kregelo, Indianapolis, exhibited twenty-five burial caskets, as follows: Children's caskets, to-wit—Two covered with white princess cloth, satin lined; one White Rose, one Blue-Bell (blue and white trimmed), one Floral, one Violet, one Pansey and one Globe, all satin lined. For adults, trimmed in plain black cloth—One Grand Duke, one Monarch, one Empress, one Crown Prince, two Puritan, one Garland and two Princess caskets.

Three caskets covered with black cloth and draped in silk fringe and tassels; also, twenty-five merino and cashmere burial robes, black and white.

MISCELLANEOUS EXHIBITS.

R. R. Rouse, Indianapolis, exhibits a hoisting machine, driven by a 6-horse power rotary steam engine. It has a lifting capacity of 25,000 pounds. The movement is completely under the control of a brake.

Indiana Paint and Roofing Company, shows one roll of rubber roofing felt, one roll of tar roofing felt, three-ply, and one of the same, two-ply; also, sample of slate roofing paint, mixed in oil, for all kinds of roofs.

Bould Over, Indianapolis, showed six portable forges of different sizes and patterns, but all with revolving blowers. A great convenience on a farm, if the farmer is endowed with a little mechanical ingenuity.

Charles Whitehead, Indianapolis, exhibited some fine specimens of sculpture, to-wit: A life-size statue in Quincy granite, and three half-size statues in Italian marble; also, fine ornamental carving in Ellettsville stone. The work is every way creditable, and the carving attests the capabilities of our Indiana stone.

E. R. Payne, Indianapolis, showed a foot power, or treadle, which equalizes the action between the heel and the toe. It looks well.

The When Clothing Store, Messrs. Owen, Pizley & Co., Proprietors, Indianapolis, displayed a wilderness of gentlemen's furnishing goods, of every style and grade of fineness. Complete suits of clothes from \$4.00 up to \$45.00. Our space forbids an attempt to particularize.

J. M. Huffer, Indianapolis, exhibited double and single harness of elegant patterns—gilt mounted, of good material and well made. He has, however, that engine of horse torture, the blind bridle. His apology is that the people want it, and the people are sovereigns.

Albert Gall, Indianapolis, made a splendid display of house furnishing goods, ornamental and substantial, consisting chiefly of Brussels, tapestry and ingrain carpets of various and elegant patterns. Curtains and window shades of lace and tapestry; rugs of a great variety of patterns and prices. Paper hangings of every variety of shades and styles, plain and ornamental, too numerous to particularize.

C. Fockler, Dubuque, Iowa, showed a detachable buggy top that can be applied to any open buggy and detached at pleasure. A convenient device.

The Gilliland Private Telephone (head of Massachusetts avenue, Indianapolis), operates without a magnet, gives and receives messages through the same stationary tube. Its capacity is about two miles.

Francis M. Kidder, New York, 820 Broadway, exhibited a Daniell's Constant Galvanic Battery, arranged for medical use. It is portable and very compact, and has a wide range of power, and is perfectly controllable.

The United States Encaustic Tile Co., Indianapolis, exhibited flooring and ornamental tiles of a great variety of patterns and colors, all made from material obtained chiefly in this State. The clay is from Lawrence, Greene and Clay counties. In burning it assumes a light cream color, but is susceptible of being glazed and colored of any desirable shade. The manufacture of tiles for flooring purposes is a new industry in this country. The Indianapolis factory, erected in 1879, was the first attempt at the manufacture in the United States. The quality and finish of the tile made, and the extent of the products, compare favorably with the largest and best works in Europe; and the material is pronounced by skilled workmen to be of superior quality. The introduction of this new industry demonstrates the influence of home production on prices. In 1878 the price of tile in floors was \$1.40 per square foot, in this city; now a superior quality of tile, home made, is laid at 40 cents per foot, and imported tile is reduced to the same price.

Purdue University exhibited samples of work done by the students in the mechanical department of the State's industrial college. These consisted of the vari-

ous forms of wood-work, such as mortise and tennon joints, splices, dovetails, truss roof framing, wood turning of every description, pattern-making for casting and architectural drawing.

In iron work there was forge work of various descriptions, in both iron and steel, and the construction of steel tools, such as are used in iron work; vise work, such as chipping, filing and sawing; iron turning and various forms of machine work. As a sample of this last, there was a three-horse power steam engine, complete in all its parts, substantially made and elegantly finished. In this work the students, under the direction of an intelligent preceptor, become expert in the use of tools and the application of modern machinery in mechanical work, which they can apply to any kind of handicraft or trade which they choose to follow. In short, they become intelligent mechanics, and may readily make themselves skilled workmen in any department of mechanics.

This is not only a good thing for the young men thus employed, but there is in it a prophecy of the solution of one of the most difficult problems of this age, to-wit: How shall the demand for skilled workmen be supplied? The apprenticeship system is a failure. It always had defects, and the introduction of modern machinery and the combinations known as trades unions have completed its overthrow. Its inherent defects were: first, the master, however skilled in the handicraft, seldom knew anything about the science of his business—he worked by rules, of the reasons of which he knew nothing, and, therefore, he was incompetent to teach his business intelligently; and, secondly, he too often worked his apprentice for profit rather than for instruction. Indeed, he was compelled to, if he would cover the expense incurred. Now, we do not suppose that Purdue University can supply the demand for skilled workmen in this State, but it can supply teachers for polytechnic schools, that should be organized in every county of the State, where young men can be educated in the science of mechanics, and trained in the handicraft of the useful arts.

All of which is respectfully submitted by your committee.

R. T. BROWN,
JOHN R. TOMLINSON.

REPORT OF THE COMMITTEE

ON THE

Special Merits of Unpremiumed Articles Entered in Books C and D,

AND

Exhibited at the Indiana State Fair, September, 1882.

CLASS I.—DOMESTIC APPLIANCES.

SECTION 1.—WASHING MACHINES.

Rice & Warmington, Indianapolis, Ind., exhibited a washing machine and wringer, steam tight, zinc bottom, designed to wash with boiling water, in which the clothes are agitated by a lever. The wringer is tightened by a cam movement, and the rubber is warranted to endure boiling suds. Simplicity is claimed for this machine.

A. L. Stoner, Indianapolis, Ind., exhibited a washing machine adjustable to small or large articles. It operates on the principle of a rolling pressure, and can be placed in an ordinary wash tub.

Joseph Metais, Indianapolis, Ind., showed a cylindric washing machine. Its principle is a spring pressure, operating against rollers, thus obviating the wearing of clothes by rubbing. It contains an attachment for a wringer.

Reber & Moore, Thorntown, Ind., exhibited the Excelsior Washing Machine. The construction is simple. A lever moves two half wheels in opposite directions, between which the clothes are rubbed. The pressure is regulated by the knee.

Oliphant Pedigo, Harrodsburg, Ind., exhibited the Stone City Washing Machine. It washes by rubbing between two corrugated boards, one being cylindrical, and swinging against the other.

SECTION II.—DAIRY APPLIANCES.

L. C. Martin, Indianapolis, Ind., exhibited Brown's Improved Churn, which works by a lever and a reversible action.

Hadley & Son, Indianapolis, showed the Rectangular Churn, in five sizes. This churn works without gearing, dasher or paddles. It is simply a box with iron-clamped corners, and turned by a crank. It is claimed that it breaks the globules of cream without breaking the grain of the butter. The churn is easily cleaned.

H. T. Conde, Indianapolis, Ind., exhibited the Circular Churn. It consists of a wooden cylinder, in which a reel is turned by a crank. It is uncomplicated, and claims great success in its work.

McKinney & Co., Indianapolis, Ind., exhibited Davis' Swing Churn, consisting of a suspended box, which agitates the cream by a swinging motion; the grain of the butter is not destroyed.

McKinney & Co., Indianapolis, Ind., exhibited the Bentwood Churn. It is simply constructed with a box and a flutter-wheel.

D. R. Nevitt, Noblesville, Ind., showed a churn with a self-lifting dash board, which works very easy. It also contains a vibrating dash board to gather the butter.

McKinney & Co., Indianapolis, exhibited two creamers of different sizes. Each consists of a chest with cans, every can having a cream indicator. The cans are surrounded with cold water (about 54° Fahr.) The milk is drawn off below, and afterwards the cream is drawn off.

S. J. Schoonover, Indianapolis, showed an animal power for a dog to work a churn. It is adjustable to any size of animal and to any desired velocity.

Hadley & Son, Indianapolis, exhibited a butter worker, consisting of a rolling lever in an inclined tray. This is also used in kneading bread.

SECTION 3.—OTHER DOMESTIC APPLIANCES.

C. W. Bixley, Kokomo, Ind., exhibited a steam fruit evaporator, consisting of a series of tin pans, one over another, and each with a steam chamber beneath. The whole rests on a cook stove. It is simple in construction, and dries fruit by steam heat instead of dry air, which is claimed as an advantage.

W. R. McKee, Troy, Ohio, exhibited the Champion ironing board and table. It is self-supporting, adjustable to any height, and suited to all kinds of ironing; can also be used as a cutting or sewing table, and folds into a small space.

The Baldwin Manufacturing Company, Shelburn, Vt., exhibited a refrigerator. It contains an appliance for regulating the circulation of the air. When a door to a provision chamber is opened, the regulator closes and stops the circulation of the air. Thus dry air only is admitted to provisions, preventing the transmission of flavors from one article to another. An economy of ice is also claimed by this device. Also, a style adapted to the grocery trade, in which the provisions are brought out on a swinging shelf, and the door to the chamber is closed automatically.

Edmund Randolph, Springfield, Ill., exhibited the Excelsior Weather Strip. It is a zinc shield, preventing all water or snow from entering, so arranged that when the door opens it folds by automatic action against the door, entirely out of the way. The action is very simple. A silver medal was awarded it at the Illinois State Fair, 1881.

H. Ritenour, Union City, Ind., exhibited a Cook Heat Fender, Fruit and Clothes Dryer. It is a zinc lined case, surrounding a cook stove, confining the heat so that the room is not heated. In the upper part is a dryer in which fruit or meat may be placed. After passing through this chamber the heated air passes out through a flue.

George B. Wright & Co., Indianapolis, exhibited the Gate City Stone Filter. It consists of a vessel with a stone bottom, this stone being a natural filter. The stone does not absorb the impurities of the water, but they are deposited on its surface. It is claimed that this filter removes impurities, detrimental solutions in the water, larvæ and any other foreign elements. The fountain is constructed in such a manner that the water is outside the ice chamber, thus giving it about spring-water temperature. The stone from which the filter is made is obtained near Atlanta, Ga.

Willis E. Moore, Thorntown, Ind., exhibited a telescope ventilator. The air is introduced through a tube, adjustable by means of pulleys and a crank, is then brought down and enters the floor or ceiling through an aperture and escapes through a tube above. It claims pure air, obtained above malaria and other impurities, and cool air. Also, to obviate the necessity of open doors and windows, and thus obviate fly-screens.

The Udell Wooden Ware Works, North Indianapolis, exhibited a splendid variety of articles manufactured from wood:

1. Excelsior ladder, of Norway pine, constructed with malleable iron anchors and brackets.
2. Eclipse ladder, put up with barbed wire nails and patent lock.
3. Shelf store ladder, with malleable iron anchor.
4. Extension ladder, constructed with malleable iron brackets and hooks, and capable of indefinite extension.
5. Single long ladder, from twenty to thirty feet in length.
6. Universal fruit ladder, also capable of extension.
7. Painters' stages, scaffolds and trestles, same material and devices as those above mentioned.
8. Folding pantry step.
9. Library folding step.
10. Combined chair and library step.
11. Twelve styles of blacking cases, in price from \$1 to \$5.
12. Six styles of commodes, one of which is odorless.
13. Ash and walnut, folding, lady's work table.
14. Folding kitchen table.
15. Four styles of ladies' lap board.
16. A large variety of general kitchen wooden ware.
17. A rope reel, holding five coils of rope, one above another, each one entirely separate, the whole occupying only thirty-three inches of space, and is on castors.
18. Revolving broom stand, holding forty-eight different articles.
19. The celebrated Udell Wood Butter Dish, in which the gum tree is utilized.

This establishment produces from one hundred thousand to one hundred and fifty thousand of these in a day, and they are in use all over the United States.

S. J. Hadley & Son, Indianapolis, exhibited the Zimmerman Fruit Dryer, Baker and Roaster. It has double walls, and the hot air is thrown between them, or, by a damper, it is retained in an oven. Its capacity for drying apples is thirteen to fifteen bushels per hour.

Yeagley, Murphy & Co., Indianapolis, exhibited a sash lock, for which is claimed security and ventilation. It is easily adjusted and burglar proof.

The Porter Manufacturing Co., Burlington, Vt., exhibited screen doors and windows. They are made without mortise, being fastened by a bracket in the corner. The frame can not sag or warp. Every man is his own manufacturer. The cost of screen, doors and windows is reduced about one-half. The bracket is also ornamental.

J. Fagerlennner, Nine Mile, Ind., exhibited a bed spring. It is a wire coil-spring with a top connection which holds every spring in its place and keeps the ticking on a level.

E. Kuhns, Indianapolis, exhibited a sash-lock and ventilator. It consists of a cog-wheel, locked by a key. It is a very simple device, and easily kept in order. It is either put in the sash or in the window frame. It locks at any point.

T. B. McManis, Indianapolis, exhibited Mixes' Bed Spring. The coils have a top connection. The spring is in two sections, is attached to the headboard, and folds up for moving. It is adjustable to any width of bed. The wire varies in size from wire for a baby's cradle up to No. 8 wire for a bed for a person weighing three hundred pounds.

J. S. Connable, Xenia, Ohio, exhibited a safe which is elevated from the cellar by means of a balance weight and a crank. This safe is to avoid the necessity of going into a cellar as frequently as usual. It is very easily manipulated by a person standing on the floor above the cellar. Its shelves are of iron, and its construction simple.

SECTION IV.—GAS FIXTURES, PLUMBING AND LAMPS.

J. Giles Smith, Indianapolis, Ind., is sole agent in Indianapolis for Archer & Pancoasts, manufacturers of gas fixtures, also sole agent for the Excelsior Slide Chandelier. This chandelier claims convenience and perfect freedom from leaking gas. Mr. Smith exhibited a full line of gold bronze fixtures, a full line of plumbing goods, headed by the glass water closet, for which he is sole agent. This material will not crack, and the workmanship is so fine as to exclude all sewer gas, this being a very valuable sanitary achievement. The display was artistically arranged and was a brilliant exhibition of beautiful goods.

F. P. Smith & Co., Indianapolis, Ind., exhibited a fine display of lamps and chandeliers. The most prominent specimens were a beautiful student's vase lamp, with glass reservoir, a Japanese paper shade; a fine line of chandeliers and various styles of lamps, a full line of nickel-plated and brass lanterns, oil stoves and gas-oil stoves. The exhibit was presented in good style.

CLASS II.—HARDWARE AND MISCELLANEOUS ARTICLES.

Taylor Brothers, Indianapolis, exhibited a railroad car coupling. The coupling link is swung down over two stud pins by a lever, governed by a spring. It is operated either from the side or the top of the car. It also carries a link for the

ordinary coupling. It will operate on the greatest curve, or, with a discrepancy of seven inches between the cars. It is a device that would save great loss of life.

R. E. Stevens, Indianapolis, exhibited a long cake griddle, with small round griddles attached at one side by hinges. The batter is placed in the small ones, and, when half baked, the cake is turned into the long griddle and the small ones filled again.

Pursell & Medsker, Indianapolis, exhibited stoves and ranges. (a) Westminster high art and low feed, a base burner and heater. The coal only has to be lifted three feet and nine inches. This stove can be used as an open grate. It contains a revolving grate.

(b) Splendid base burner and base heater. It has a sectional fire pot, so that the bowl can be repaired in sections. It has a shaking and slide out grate, ventilating flue, carrying away the bad air.

Also, the same pattern in a double heater, carrying the hot air above. It takes the hot air in the chamber with the heat

Also, the same stove with oven for cooking, and two 8-inch griddle holes.

(c) Diamond range. It has a 21-inch square oven, elevated hot closet, a reservoir, burns either wood or coal, six holes, broiling iron and gridirons, working in the ash pan.

(d) Full line of open grates and heating stoves of other classes.

Ewald Over, Indianapolis, exhibited an iron fence and gate. The pickets are set in angle iron rail, are very strong, and the posts are set in cement. The domestic gate is very convenient and durable.

Mast, Foss & Co., Springfield, O., exhibited a hitching rack or railing. The post is in one piece, and the rails thread into them; the posts are adjustable to different heights; also, an iron fence post adjustable to keep the fence in line. The rail is riveted in a slot to adjust to heat and cold. The ornament is independent of the picket. The picket is three inches below the bottom rail. It has a punched rail, and a wrought iron bolt through the base and screwed into the post.

E. T. Barnum, Detroit, Michigan, exhibited an iron fence. It is constructed with an angle rail, the rivet working in a slot, and made of wrought iron. It has an adjustable post; claims to be cheap. Also, a variety of styles of wire fence

Sedgwick Bros., Richmond, Ind., exhibited an iron fence. It has iron tubing for railing, and woven wire. It is cheap, and adapted to cemeteries. There were several varieties of the woven wire. The same parties exhibited wire fencing. It is made with a wooden rail and galvanized woven wire. It is intended to supplant the ordinary picket fence.

Also, wire gate, light and strong. The same parties also exhibited the Automatic Iron Carriage Gate. It has a single trip, and a lever for horsemen. As soon as the trip is struck the gate falls backward and locks, so that you need not wait for it to open. It works very easy.

H. Westphal & Co., Indianapolis, Ind., exhibited a new patent cross-cut saw. The cutting teeth are arranged in sets, the alternating teeth being formed to cut in

opposite directions. Because of this arrangement and form, the teeth are obliged to take hold of the wood when the saw is moving in either direction, without being borne down upon. It claims to cut faster than any saw in the market.

The Indiana Wire Fence Company, Crawfordsville, Ind., exhibited a Barbed Wire Machine. It will manufacture 15,000 pounds daily. The barbs point in four directions. The same firm exhibited a barbed wire fence. It has an angle corner post which is braced, the wire is secured by a hook-headed bolt. The post has a shovel bottom and flanges.

A. H. Meal, Indianapolis, Ind., exhibited the Barbed Wire Champion Iron Fence. The pickets are clamped on a T rail, and no holes are punched. The rail is attached to the posts with a slot for expansion. It claims to be the strongest fence with the least iron.

Emery Heck, Connersville, Ind., exhibited an automatic farm gate. It is latch-supporting, has no bumper, but strikes a slide. It has an adjustable hinge. The slide of the hinge is inclosed so it will work in freezing weather. The top hinge is adjustable to leaning post. The trips set on the track.

Purdue University, Lafayette, Ind., exhibited farm products—32 varieties of potatoes, 27 varieties of unthreshed wheat, and 17 varieties of sugar cane. The display was well arranged.

Powell Manufacturing Co., Burlington, Vt., exhibited an iron fence post. It is of wrought iron, for wire or boards, adjusted by a key, drives into the ground, and can be sold for thirty cents apiece.

E. C. Atkins & Co., Indianapolis, exhibited assorted sizes cut steel circular saws, from 2½ inches to 88 inches in diameter. One 88 inches in cast steel, and one 36 inches in silver steel. Eighty-eight inches is the largest size ever produced for practical use. Also, a seven-foot mulay, five drag saws, twenty-one best cast steel cross-cut saws, embracing cast steel Diamond, Champion, Sheffield, Electric, Double Hook, common tooth, American, patent concave tooth, and Dexter. Also, celebrated silver steel cross-cut Diamond and Sheffield. Also, one-man cross-cut, two buck saws framed, two hand saws, eighty-one billet webs, six band saws, two buck saws, six patent handles, four trowels. This display was marked by superior material, even-tempered work and smooth cut teeth.

A. M. Brainard, Chicago, Ill., exhibited a self-generating gasoline stove. It has an air-pressure pump, and the air drives the gasoline into the burner. It can be filled while lighted in perfect safety. When the reservoir is opened the burner is extinguished. The gasoline is held in the lower part of the stove. When the light is extinguished the oil flows down into the reservoir. It will boil a gallon of water in four minutes, and has capacity for ordinary cooking. It is claimed that the fuel for cooking for a family of seven, for one week, will cost thirty-five cents. It is free from odors and smoke in lighting.

Sinker, Davis & Co., Indianapolis, Ind., exhibited the Standard Saw Mill. It has a 10-inch bearing on mandrel, a cone pulley feed. This is the largest made. It has 4 changes. It has a stout brace on the backing pulley. It is 3½ inches in mandrel carriage, axle roller. The set moves the timber up with each motion of the lever.

L. M. Kanova, Nashville, Ohio, exhibited a double cylinder force pump. When the pump handle falls the water falls to any distance desired. It will throw water from a fifty foot well over a two-story building.

R. R. Rouse, Indianapolis, Ind., exhibited a display of well and cistern lifts and force pumps.

The driven wells have malleable iron points, covered with brass wire gauze and perforated brass. Also wooden and iron pumps.

Flint, Walling & Co., Kendallville, Ind., exhibited an underground force pump. It is easily adjusted to throw water through a tube or hose, and can be repaired without taking out of the well.

Indianapolis Pottery Co., Indianapolis, exhibited flower vases and pots, embracing terra cotta garden vases, decorated Japanese vases, oleander pot, hanging baskets, painted and unpainted; plain painted Japanese vases, also, natural ones; a variety of stoneware, a great assortment of natural florist's flower pots. The display was artistically arranged.

The Indiana Foundry Co., Indianapolis, exhibited adjustable stove repairs, embracing an adjustable fire back for cook stove, bottom grate, damper, front plates, front grates, adjustable change from wood to coal, or vice versa.

L. D. Railsback, Indianapolis, exhibited a double action force pump. It has a stone cylinder, is non-freezing. Also, a variety of wood pumps.

A. S. Comstock, Indianapolis, exhibited engine trimmings, embracing steam and water fittings of all kinds, valves, steam gauges, whistles, water gauges and oilers.

W. B. Barry, Indianapolis, Ind., entered saws.

J. H. Riley, Indianapolis, Ind., entered a saw set.

L. Bussell, Indianapolis, Ind., entered a car spring.

J. D. Hicks, St. Louis Mo., entered an automatic saw sharpener.

John W. Howell, Indianapolis, Ind., entered a process for preserving eggs.

Kelso & Hickey, Morgantown, Ind., entered an animal trap, a fly brush and automatic farm gate.

A. H. Swain, Winchester, Ind., entered an ironing board and a post-hole augur.

The American Manufacturing Co., Wanesboro, Penn., entered a fruit dryer.

Jefferson Caylor & Co., Indianapolis, Ind., entered two churns.

All the above list were not examined, because the committee either could not find the goods or because there was no one found to represent the goods.

Respectfully submitted,

S. J. TOMLINSON,

JOHN TILSON,

Committee.

GEOLOGY, NATURAL HISTORY, ETC.

PROF. A. W. BRAYTON, SUPERINTENDENT.

I herewith submit the report of the Department of Natural History and Geology. Exhibit of 1882.

Books 39 and 40 come under this Department.

The awards on coal and cut stone, were made by Prof. John Hurty, Chemist and Assayer. The entries were mainly by Messrs. Cobb & Branham, and Myers & Co., of Indianapolis, in coals and coak.

W. B. Howard and R. S. Denig exhibited a series of machine dressed limestone from Mount Vernon, St. Paul and Dark Hollow quarries. They were dressed as moldings for the State House, and are accompanied by the steel chisels, variously formed, by which the moldings are shaped. These specimens were contributed by Messrs. Howard & Denig, to the State Museum.

The exhibit of the U. S. Encaustic Tile Company, of Indianapolis, was included in this Department, although, for its beauty, it belonged in the Department of Decorative Art. They exhibit hearths good for a thousand years' wear, in prices from \$10 to \$50. Their tiles are coming into general use in this country in floors, mantles, grates, stoves, and on exterior and interior walls. They combine at once, utility and ornament; they are durable, cleanly and beautiful. Symmetrical architecture has been called frozen music, and, after the same thought, it may be said the encaustic tiles exhibited at the State Fair by the United States Encaustic Tile Company, are petrified beauty. It is crude Indiana clay etherealized and exalted by fire, form and color.

The Encaustic Tile Company show 350 square feet of hearth and floor designs, ranging in value from 50 cents to \$3.50 a square foot. Mr. W. Terrell, the secretary, is in constant attendance. The exhibit is a beautiful one in all respects.

Of the Department of Natural History, the *Indiana State Journal* says:

THE DEPARTMENT OF NATURAL HISTORY.

The Department of Natural History and Geology occupies a space of fifty feet square at the east end of the Exposition building. The collections are exhibited by amateurs, except one small case belonging to the State Museum. This contains the seventy-six flint hoes found by Eli Clark, September 1, at Centerton, Morgan county, and which were purchased for the State Museum by Dr. Collett. They are a savage lot of old hoes, and should have a place in the exhibit of agricultural implements. In the same case is a unique lot of casts of ammonites and trilobites, made by Prof. A. D. McCord, of Oxford, Ohio.

All other exhibits are by private parties. Foremost among these is the gigantic walrus or sea cow (*odobenus rosmarus*), the Atlantic walrus. This unique monster was presented to Dr. Collett by Dr. Allen, of the Surgical Institute, and will ultimately find its way into the museum of the new State House. There is not a

more perfect specimen of this animal in the United States. It is nine feet long "over all," stands four and a half feet high, and weighed, when alive, upwards of 3,000 pounds, and with its long canine tusks, small head and bristling whiskers, and immense body, is a curious object. This species is on the verge of extinction. Twelve thousand are destroyed annually, furnishing 150,000 pounds of ivory, and over 4,000 barrels of oil. Two hundred pages are devoted to this huge sea beast in Dr. J. A. Allen's "History of North American Seals and Walruses," No. 12 of the miscellaneous publications of the United States Geological Survey under Prof. Hayden. Dr. Collett has been offered fine exchanges for it by Prof. Ward, of Rochester, who wished to secure it for the Agassiz Cambridge Museum, but will never let it leave his native State. The State ditch would make an only comfortable swimming course for a full-grown specimen.

It is not generally known (owing to the natural modesty of scientific men) that Indianapolis has a full-fledged Academy of Natural Sciences. The present society counts twenty active members, among them Drs. John Oliver and Frank Ferree; Ernest Morris, John Gardner, and a number of City High School graduates, with whom the society originated. They meet on Tuesday evenings at the court house, where their museum, library and assembly rooms are located. The society have on exhibition one hundred and ten species of birds of the State, three cases of insects, collections of minerals, fossils and shells, an aquarium of fishes and a small collection of native and foreign plants. They have shown energy in collecting, and make a creditable exhibit for a young society in a city so wholly devoted to business, and so little interested in science, as is Indianapolis.

Misses Emma Caldwell, Libby Murray, Anna Reddington, and Messrs. W. Wood and L. S. Shuler, exhibit small herbaria of local flora, such as are made by the botanical students of the City High School. They are neat and creditable.

Fletcher M. Noe has a collection in cases of some seventy birds and mammals, well mounted and disposed. He also exhibits shells, woods, fossils, relics, etc. Mr. Noe is an omniverous collector and an excellent taxidermist.

Mrs. J. D. Campbell shows a collection of shells, fossils, minerals and Indian implements, well arranged and labeled.

Mr. Louis Woerner has a collection of old gold, copper and silver coins and medals, worth upwards of a thousand dollars, and which he has been twenty-seven years in gathering.

Mrs. Jessie M. Brayton shows a series of nearly two hundred and fifty Indiana bird skins, mostly prepared by herself, and accurately named and classified according to Dr. E. Cane's Manual. The collection is especially rich in warblers, sparrows and wading birds.

Mr. W. J. Chambers, of Kent, Jefferson county, Ind., exhibited two cases of insects, classified in orders. They were finely mounted and attracted much attention.

Prof. O. B. Hay, of Butler University, and Prof. W. C. Latta, of Purdue University, made the awards in this department.

Fossils—Mrs. J. D. Campbell; Fletcher M. Noe, second.

Minerals—Mrs. J. D. Campbell.

General Collection of Shells—Natural Science Association; Mrs. J. D. Campbell, second; Fletcher Noe, third.

Fresh-Water Shells—Natural Science Association, diploma.

Birds and Animals, Classified and Illustrating the Natural History of the State—

Mrs. J. M. Brayton; Fletcher Noe, second; Natural Science Association, third.

Diurnal Lepidoptera—Fletcher Noe.

Nocturnal Lepidoptera—Fletcher Noe.

Collection of Insects—Natural Science Association; Fletcher Noe, second.

Botanical Specimens—Natural Science Association; Libbie Murray, second;

Louise Laube, third; L. S. Shuler, fourth.

Collection of American Woods—Fletcher Noe.

Collection of Coins and Medals—Louis Woerner; Fletcher Noe, second.

Aquarium, with Fish—Second premium to Natural Science Association; first premium withheld.

Mound Builders' Implements—Mrs. J. D. Campbell; Fletcher M. Noe, second.

There was general acquiescence in the judgment of the judges. The whole display was creditable, and the premiums offered by the Board called out the amateur and private collections, and have stimulated effort in this educational department, for such it really is.

It would have been easy enough to have filled the space allotted to Natural History and Geology with the State Museum collections, but these may be seen at any time in their proper place. Professor Collett suggested that a greater stimulus could be given to natural history study by inviting and encouraging amateurs to exhibit. The competition was close, especially for the premiums for shells and minerals.

Professors Latta and Hay devoted an entire half day to the examination, and there was general satisfaction in the decision. It was deemed best to withhold the premium of ten dollars for aquarium, and give the second only, as there was but one moderate sized collection entered. It is scarcely creditable to the State Fish Commission that no exhibit was made by them.

The superintendent of this department wishes here to express his thanks to Profs. Latta and Hay, for their time and care in making the awards in natural science, and to Prof. Hurty, for passing on Book 40, the coals and minerals.

THE EDUCATIONAL EXHIBIT AT THE INDIANA STATE FAIR.

Having been appointed by the Executive Committee to notice and report upon the educational exhibit made at the Indiana State Fair, I have the honor to submit, in compliance with your instructions, the following report:

It was something of a surprise to find so few of the public schools and educational institutions of the State represented. The magnitude of the educational work done in this State can not be represented by a few sections here and there.

However, the schools making an exhibit reflected much credit, both upon themselves and the State, by the display which they made.

Among the entries made in the educational department, the following schools and colleges are entitled to special mention on account of the very creditable exhibit which they made, namely: Purdue University, the Indianapolis public schools, the Practical Business College of Indianapolis, and Bryant & Stratton's Commercial College, of the same city.

I.—Purdue University.

This Institution is located at Lafayette, Indiana. It was partially endowed by Congress "for the benefit of Agriculture and the Mechanic Arts." It is, therefore, an institution in which every farmer of Indiana should have a deep interest.

The chief aim of the college, as shown by the exhibit, is to send forth throughout this and other States, this State in particular, well trained scientists, agriculturalists, and artisans, prepared by their scientific and practical education to foster and promote the principal great industries of the State.

The Institution embraces three departments. All of them were represented in the exhibit made at the State Fair. But the productions of the different courses exhibited can not be mentioned in detail. The following are, however, deserving of special notice:

II.—School of Mechanics—Shop Productions.

In this department examples of bench and machine work in wood were on exhibition, such as rabbeting, mitre and dove-tail joints. The machine work included a lot of small articles to show the different uses of cutting tools, such as turning, circular, scroll sawing, pattern making, etc.

III.—School of Industrial Art—Industrial Designs.

Here was shown many good specimens of free-hand and industrial drawing, such as articles of manufacture, as furniture, iron work, drawings of machines, etc.

The vise work in iron was a very interesting feature of this exhibit, and received many favorable commendations from visitors. The most interesting feature of the exhibit was the pencil and crayon drawings.

The Management should be proud of the volunteer exhibit made by Purdue University. It is deserving of more than this written notice.

INDIANAPOLIS PUBLIC SCHOOLS—DRAWING.

The display of drawing made by these schools was one of practical work which had been done in the schools.

In this exhibit were many excellent samples of design, copy and dictation drawing, all being the actual work of pupils in the third, fourth, fifth, sixth, seventh and eighth grades of the schools.

The work showed a carefully graded system of instruction in this branch, and proves that much skill can be developed in the public schools by a properly graded system of work in drawing. The work also showed conclusively that the tastes of the pupils had been much improved, and their creative powers enlarged as they had advanced from grade to grade in this study.

There was also exhibited in this display, samples of perspective, projective, and objective drawings by the Indianapolis High School. This made the exhibition of drawing, as taught in these schools, complete. The whole collection showed excellent results which have been attained by these schools in this branch.

This report does not give to this exhibit the substantial recognition which it deserves. May it be rewarded in some way.

THE PRACTICAL BUSINESS COLLEGE. .

Here we found on exhibition :

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| 1. Practical Writing. | 4. Pen Drawing. |
| 2. Off-Hand Flourishing. | 5. Pen Card Writing. |
| 3. Pen Lettering. | 6. Collections of Pen Work. |

The above work was all executed by the exhibitors, and, upon the whole, was very creditable. The work was nicely and conveniently arranged.

BRYANT AND STRATTON.

Mr. C. C. Koerner, president of this institution, had on exhibition many good specimens of business college work. The following is worthy of particular mention :

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| 1. Business Writing. | 4. Card Marking. |
| 2. Ornamental Penmanship. | 5. Pen Portraits. |
| 3. Pen Drawings. | 6. Pen Work. |
| 7. Miscellaneous Mechanical, Crayon and Pencil Drawings. | |

All of the above work was a marvel of neatness, exactness and beauty which commanded admiration.

Respectfully submitted,

J. T. SMITH.

ADDRESS OF HON. GEORGE B. LORING,

UNITED STATES COMMISSIONER OF AGRICULTURE.

Delivered before the Annual Agricultural Convention, January, 1883.

A good audience, including the members of the State and Delegate Boards of Agriculture, assembled at the Park theater, the evening of January 2, to listen to the address of Hon. George B Loring, of Massachusetts, United States Commissioner of Agriculture. On being introduced by President Custer, Dr Loring said:

A prosperous State, increasing rapidly in wealth and population, would always be inclined to encourage its great industries, and Indiana could well afford to do this for the benefit of those who would study her growth, and for those, also, who, within her own borders, are engaged in this great industrial work. Not one of the oldest States of the Union—having been admitted less than seventy years ago, and at a time when this country had just passed through its second great struggle to establish its power on sea and on land—this State has taken the foremost stand in all those arts and industries which have made our country rich and prosperous and educated. In all her endeavors, Indiana has kept pace with the rest of the States of this Union, and has outstripped many older than she. In institutions of education and religion, and in the general diffusion of knowledge, she has done a creditable work, and the exhibit which she made at the close of the first century of our national existence attracted great attention from all those nationalities represented at the great exposition.

INDIANA'S WONDERFUL DEVELOPMENT.

Seventy years ago she barely had population enough to enter this Union—her industries were small, her manufactures primitive, and her agriculture circumscribed and simple. Now she has two millions of people. In agricultural products her wheat crop amounted, in 1880, to 47,284,852 bushels; her corn crop to 115,482,300 bushels, her crop of oats to 15,599,518 bushels, her hay crop amounted to 1,361,083 tons. She raised 1,135,770 bushels of flax and nearly 7,000,000 bushels of apples, while in all the smaller fruits her crop was enormous. The total value of her staple agricultural products for 1882 is \$225,000,000. The number of cattle in this State in 1881 reached 1,254,655, the number of horses 587,258, number of swine 2,867,772, the number of sheep was 1,111,516; the wool product reached the encouraging quantity of 4,494,037 pounds. The natural resources of this State are also great, the production of anthracite coal increasing from 15,662,000 tons in 1870 to 42,714,764 tons in 1880. In this industry alone there were employed nearly 167,000 laborers with a capital of more than \$256,000,000. The growth of manufac-

tures here has been quite surprising and rapid. In 1875 the number of manufacturing establishments in this State was 16,000, the number of hands employed was 86,402, the capital invested was \$16,462,161, the wages paid were nearly \$35,500,000. The cost of the material was more than \$104,000,000, and the value of the products was \$301,304,271. In view of this vast growth of industries, it is peculiarly fitting that we should contemplate carefully, the great enterprise which it represents, in all its social and civil relations.

The record of the crops of the United States, during the past year, will be interesting to those who are engaged either in the work of farming or converting the raw material into manufactures. The crop of corn will reach 1,624,917,800, as estimated to the first of December, and the immense crop of some of the Southern States will largely increase this amount. This crop is, next to grass, the great crop of the country, grown everywhere except on the highest elevations, and producing an aggregate in comparison with which all the maize grown in the remainder of the world is quite insignificant. Kansas produces more than Roumania, Ohio more than Hungary, Pennsylvania more than France, and Michigan more than Italy. Illinois, in 1879, produced nearly as much as the average crop of all Europe. The United States will, the present season, quadruple the European harvests. The area in maize has nearly doubled since 1870. The estimated annual average from 1872, for six years, is about 1,500,000,000. The average consumption, for twelve years, is about 1,150,000,000 annually. The average yield per acre for twelve years has been about twenty-six bushels. The consumption of wheat for the present year requires 250,000,000 bushels; for seed, 57,000,000; leaving nearly 200,000,000 for exportation. The entire crop for the year 1882 is about 502,789,300 bushels. The crop of oats has largely increased, and amounts this year to nearly 450,000,000 bushels. The area of barley has increased until it has reached nearly 2,000,000 acres, and the yield will be about 45,000,000 bushels. The cotton crop has covered 16,276,691 acres; the average per acre is 187 pounds, and the pounds of lint raised is 3,052,837,946. Of cane sugar, the crop in Louisiana is about 200,000 hogheads, or not less than 250,000,000 pounds.

THE IMPORTANCE OF THE BOARD.

In referring to the importance of the State Board of Agriculture, Mr. Loring said:

The board belongs to that class of institutions which has become of the highest importance in the education of mankind in the duties of life. Associate effort is in this age, indeed, to be found everywhere. Societies are organized by every profession, every industry and every calling, for the purpose of bringing about the best results of which mankind is capable. The associated efforts of those who are engaged in conducting the great intellectual, and moral, and material enterprises of our country, are so well known that they need but be referred to here. Exhibitions of the fruits of associated industry multiply on every hand, and while those engaged in educational enterprises, and in the learned professions, meet together for counsel and encouragement—while those who manage the great railroad system of our country organize for mutual support and mutual advantage—while the great

manufacturing interests of the country have their organized societies, it is especially the duty of those who are engaged in the great fundamental industry of agriculture to gather together in every form of association to ascertain the best method of conducting their calling, and the means by which they can secure for themselves the best methods for the fruits of their labor. I have, therefore, always been in favor of associations like this, and it is on this account that I have undertaken to extend to you the encouraging hand of the government under which you live, and to represent here, not so much as a teacher, as a learner and as an associate, that department of the government which farmers have a special right to call their own. I consider it to be the duty of that department especially to encourage all associated and private endeavor with regard to the industry represented here. It is in accordance with the custom in this and in other countries for the farming communities to gather together to educate and enlighten themselves upon the occupation in which they are engaged. It is these associations that have done so much toward helping the agriculturist to exercise that thought, that sound judgment, that prudence and careful consideration which we are exercising with so much profit to ourselves in the business of life. It is indeed true that, in the older as well as in the newer sections of the country, agriculture has always been the first business to engage the attention of intelligent and enterprising people, and as such it is entitled to universal care and consideration. Farming is largely an experimental art in which new laws and facts are constantly discovered, and which is waiting on scientific investigation to fix the principles by which it should be conducted, and it is the duty of the department, therefore, by encouraging societies, schools, experiment stations and associations of every description, to aid the farmer in his calling and in his efforts to develop and perfect his business.

Dr. Loring said he was the more inclined to do this because he recognized the fact that agriculture lies at the foundation of State and society in every country, and especially in our own, where for many years it was almost our only industry, supplying us with our revenue, and feeding and clothing the strong men who gave us our nationality. It was a cluster of agricultural colonies which secured our independence. The citizen proprietors of the soil of America have learned to defend their rights, and they struck for their freedom long before the associate industries had gained a foothold on these shores.

WHAT THE FARMERS HAVE DONE.

It was "the embattled farmers" who, as the poet tells us, "fired the shot heard round the world." And, having laid the foundation of our republic, they pursued their calling with diligence and success, and gave us a strong and honorable community, renowned for courage, honor, integrity and fidelity. It was this almost universal industry, connected with small commerce, which enabled an economical and prudent people to set an example of financial honor which has not yet been forgotten. When Mr. Jefferson closed his career as President of the United States he was congratulated by the Legislature of Virginia, through the mouth of the illustrious William Wirt, that he had succeeded in paying \$30,000,000 of the national debt. The power to do this came largely from the land. Manufactures then

had no existence. The rivers washed down their falls and rapids unhindered to the sea. Cotton manufactures were unknown. Woolen cloth was woven by the industrious mothers and sisters on looms, for which a room was always provided in the well-organized household. Flax was grown and linen made, but neither manufactures nor the mechanic arts gave employment to our people nor revenue to the State. The power of the nation consisted in the stout hearts of the farmers, and the wealth of the nation consisted in the successful application of their skill to the soil. They farmed under great advantages, it is true. The soil was fertile and the harvests were great. In my own State, in my own county of Essex, so famed for early and late activity and industry, one of the most reliable and powerful and faithful statesmen and soldiers of the revolution, Timothy Pickering, tells us that in his day the soil of that county yielded to the acre 28 bushels of wheat, 117 bushels of corn, 52 bushels of barley, 518 bushels of common potatoes, 900 bushels of carrots, 1,034 bushels of mangel-wurzel, 688 bushels of Swedish turnips, 983 bushels of beets, 654 bushels of onions; 30 tons of hay grew on six acres, and the yearly average of forty acres for many years was more than 120 tons. To the fertile lands of the West these crops may not seem extraordinary, but to the East they were, and are far beyond what can now be reached by the most skillful fertilizing and the highest cultivation. In our own day the soil may have lost its fertility, industries may have multiplied, the paths to wealth and comfort may have become more and more varied, but agriculture holds its former place still, and taxes our ingenuity and secures prosperity.

In the great trials that have befallen our generation—trials in which not only the wisdom of the wise, but the fruits of the industrious are needed to sustain and develop the country, which the valor of the faithful saved from ruin—the wealth which has been drawn from the soil has enabled us to maintain our financial honor and solved many a vexed financial problem. The position held by us in the commerce of the world was watched with interest and anxiety during all those years in which the power of the people to bear the great war debt was a matter of doubt. At the close of the war the financial facts of our country were against us. Gold was at a premium. Our exports were comparatively small. The balance of trade was against us, and our supply of gold was constantly drawn on to pay our foreign bills. Then it was that the thoughtful and patriotic American citizen turned to the growing industries of his country for the solution of the financial question, which was so universally discussed and so seriously considered. Not to our vast revenue alone did we turn, but to that producing power of our people which might find a foreign market and fix exchange in our favor. The men who had fought bravely now toiled diligently, and ere long exports increased rapidly, gold was removed as a commodity from the market, the balance of trade was in our favor, and the American people ranked among the large exporting nations of the earth. The solution of our financial policy had begun, and it has continued until we are of one heart and one mind on this all-important question. Once more has agriculture contributed a vast share of that which has been sent into the markets of the world. As in early days of the republic, so in our day has the soil enriched and supported our people. Besides feeding lavishly fifty millions of people, the agriculture of the country has continued to supply a large amount of our exports of domestic mer-

chandise. In 1880 the exports from this country rose in one year from \$635,042,078 to \$883,915,941, and of this vast sum agriculture furnished \$724,489,413, or 81.96 per cent. of the whole amount. The imports amounted to \$667,954,746, leaving a balance of \$215,961,195. The effect of this contribution to our export trade is incalculable, and it has done so much toward restoring us to that financial stability and prosperity and honor of which, as a nation, we ought to be proud, and for which every prosperous man ought to be so grateful, that I turn with pride and satisfaction to the record which American agriculture has made for itself. But not only are the years of agricultural prosperity instructive, but the bad seasons also teach us a lesson which we should not forget. In 1881 the great crops of 1880 were greatly reduced, and the change in our commercial affairs was striking and significant. In 1881 the cotton crop fell off 1,200,000 bales, wheat 118,269,778 bushels, corn 522,518,543 bushels, rye 3,835,000 bushels, oats 4,004,016 bushels. As one result of this, the exports over imports fell from \$259,712,718 in 1881 to \$25,727,856 in 1882, the fiscal year ending June 30, the effect of which is manifest.

GROWTH OF AGRICULTURAL INDUSTRY.

Mark now the growth of this industry in a decade, during which it has made this great contribution. In 1870 the amount of Indian corn raised in this country was 766,944,549 bushels; in 1880, 1,754,449,535 bushels. In 1870 the wheat crop amounted to 287,745,626 bushels; in 1880, to 459,667,045 bushels. In 1870 the oats crop reached 282,107,157 bushels; in 1880, to 407,859,033 bushels. In 1870 the tobacco crop amounted to 262,735,341 pounds; in 1880, to 473,107,573 pounds. The increase of agricultural products was large and universal, amounting in many instances to 100 per cent. And in the last year of this decade, from 1879 to 1880, out of the vast increase of products our cattle exports rose from \$13,000,000 to \$14,000,000; corn, from \$43,000,000 to \$50,000,000; wheat, from \$167,608,000 to \$190,546,000; flour, from \$35,000,000 to \$45,000,000; cotton from \$200,852,000 to \$245,534,530; beef, from \$7,000,000 to \$12,000,000; lard, from \$20,000,000 to \$35,226,000; pork, from \$5,000,000 to \$8,000,000.

This unusual and extraordinary prosperity is due undoubtedly to many causes, natural and artificial; the natural causes being our diversity of soil and climate and the variety of our crops, and the economy with which new and fertile lands can be cultivated—the artificial causes being the advantages of local and general markets, and the relations established between the farmer and the soil he cultivates by the independent ownership of lands under the laws of our country. To the last cause may be attributed much of that elasticity and energy which the American farmer manifests in occupying new lands, and in the cultivation of crops adapted to the markets which they can reach. It were not easy to tell the strength and stimulus which comes through the ownership of the soil, to him who occupies it, has fixed his home upon it, and looks to it as his means of subsistence. It is to the division and sub-division of the land, almost as much as their devotion to the institutions of learning and religion and their determination to secure all social and civil rights, that our fathers owe their success in establishing free government on this continent. They had the Anglo-Saxon love of land, but above all they had the Anglo-Saxon love of independence; and land monopolies, entail and

primogeniture, were especially odious to them. They established in the earliest colonial days a system of land-holding so simple, so exact, so easily managed, that it has become the example which all republican governments follow. They established a public registry of deeds, and provided for an easy and recording transfer of landed estates from hand to hand, as easy as the transfer of personal property. The State which they formed became not only the home of civil and religious freedom, but of small landed proprietors also. When they struck for freedom they struck for the sacred right of their own home, which had become scattered throughout the length and breadth of the land, and were the nurseries of Puritans in the religion and Roundheads in politics. They were indeed the lords of the soil, and were as unconquerable in the defense of their little farms as the great landed proprietors of their old homes were in protecting their immense estates from invasion of popular revolution. The feudal tenure of England really never gained a foothold here. But the commercial tenure which took its place gave every prosperous member of the community an opportunity to cultivate his own little kingdom, and to dispose of or exchange it at his pleasure. The temptation to secure land, under these circumstances, became irresistible. The mechanic labored to secure his homestead; the merchant was never satisfied until he had purchased a farm with the surplus profits of his commercial adventure. The professional men of the day—the lawyers, the clergymen, the physicians—all owned and cultivated their land, which they were proud to occupy. And with this American system, as it has been called, a system which the English reformers have advocated and promised the English people, went with a multitude of civil rights and privileges and opportunities which were never lost sight of by those who made up and supported and organized the community. The occupants and owners of the farms were the pillars of the church; they filled the town offices; they took their places in the Legislature, and made laws for the Commonwealth; they took part in the town meeting with its stormy debate and free ballot; they aspired to high offices, and exercised the right of beating and being beaten at the polls. The school house, the library, the lecture room, they entered for their mental culture; the church, for their moral and religious education. They founded a system of State and society here which required of them and requires of us, also, a liberal expenditure both for public and private necessities and luxuries. In a community founded as they founded theirs, taxes must necessarily be somewhat heavy; personal expenses must be somewhat large; the advancement of home must be provided for, the public entertainments will be enjoyed; the children must be well clad, provided with books, and supplied with a good education. As this is the American system of land-holding—with all its privileges and opportunities—a system which the statesmen of the old world study with profound interest and great care—it may be attended with a great deal of careless, and unprofitable and unskillful farming, as every system is, but it produces great results, and is the foundation of great public and private prosperity.

IMPORTANCE OF AGRICULTURAL DEVELOPMENT.

The agricultural law which governs the management of farms like these is the supply of the home, and, if possible, a neighboring market. For the great grain-

growing sections of our country, the more populous and older States, with the commercial and manufacturing cities, furnish the great bulk of the market, consuming 90 per cent. of all the agricultural produce of this vast country. For the smaller farms, these same great centers of population furnish a market for all local crops, and encourage careful and systematic farming. As our population increases, and the manufacturing and mechanical industries extend, this latter system of agriculture, with all its profit and its independence of long and expensive transportation, will prevail. While, therefore, the foreign market presents great temptation, fair profits and the stimulous of commercial enterprise, as well as the financial benefits of an interchange of industrial products, it is the markets of our own people which possess the greatest advantages and lie at the foundation of our agricultural prosperity. We may learn from this, if we will, the vast importance of developing our domestic industries of every description, and of uniting them all in a cluster of enterprises supported by American capital, developed by American labor and organized on the laws of American state and society, with their civil rights and their social equality.

In view of this mutual dependance of American industries upon each other, Dr. Loring congratulated his audience on the increased interest of agriculture everywhere manifested at the present time. The spirit of inquiry shown by individuals and associations devoted to agriculture, is full of promise. The desire to prove a theory has given place to a determination to ascertain laws, and to investigate the practices which will afford the largest profits to the farmer. Agricultural science now means not abstract theories, but practical results. In the Department of Agriculture this view has controlled and pointed out the line of action. Under the liberality of Congress, the Commissioner has been able to continue, in approved localities, the construction of artesian wells, with the hope of great advantage to the arid regions of our country; the collection of reliable statistics has been provided for, and with largely increased funds, reliable agents have been appointed in the States and Territories, whose business it is to observe and report upon crops of all kinds, the products of animal industry, the cost of transporting agricultural merchandise, the supply and consumption of forest products, and all matters connected with the industry of the farmer.

The investigations into the manufacture of sugar from sorghum have been continued, and while the scientific explorations into the sugar producing properties of the plant have been carried on at the department, the best process of manufacture has been submitted to the manufacturers themselves, the result of whose experiences will be laid before the country as soon as obtained. The entomologists' work of the department during the last year has been of great value, and has been conducted in the most skillful and scientific manner. Valuable experiments have been made in testing the value of textile fibres, and the work of ascertaining the grasses most valuable for given localities has been carefully presented by the botanist. Great pains have been taken to ascertain the extent of contagious animal diseases, and to provide their remedy.

Dr. Loring concluded by appealing to farmers. present to exercise economy and skill and devotion in the management of their business, and open-mindedness in

their investigations, assuring them the kind of prosperity which would attend them as a community could not be surpassed by that of any industry on earth, however imposing and attractive it might be.

Dr. Loring spoke without notes for about one hour and a half, and his speech was frequently interrupted by loud applause.

EDUCATION AND FARMING.

Delivered before the Annual Agricultural Convention, January, 1883.

The following address was delivered by Prof. F. A. Friedley, of New Albany, before the Delegate Board of Agriculture, on Thursday, January 4.

EDUCATION NECESSARY TO SUCCESSFUL FARMING.

There is yet some drudgery about farm life, though in these days of invention and patent farming implements, most of that drudgery is confined to the farm house. All of the gods and goddesses of home and soil have not yet opened up a royal road of ease and comfort and idleness to successful farming. Eternal vigilance is the price paid for well-tilled acres and well-filled barns, and the two results always go together. The days of wooden mould-boards, of the reaping-hook and grain-cradle; of the horse-mill, faithful to each grain of corn, and wooden cart-wheels; of log rollings and house raisings, where the sturdy yeomanry measured their strength at the end of a handspike or raising-fork; these days of precious memory to Indiana's sons exist only in the enchanted visions of the past. To take a vast territory, and that a wilderness, as did the men and women of Indiana in 1816, and pioneer it into a commercial and agricultural position

SECOND TO NO STATE

In the Union, and far in advance of many of the older States, implies an education somewhat commensurate with the demands of the age. It has been no child's play or pastime to do what has been done in this State, within the memory of the older men of this honored presence. To be practically educated is often to have the best as well as the highest education. And no theoretical training, however systematic, can dispense with the necessity of practical application. Theory is sometimes the preparation, practice is always the work accomplished in some manner. Theory is the well devised machine ready for use; practice the well-wrought work turned out by the machine in active operation. We do not educate, then, that we may do something, but that we may do that something better, or the best possible. The question is, "How can we raise more corn, more wheat, more produce?"—in short, "How can the farm be made to give the best possible income with the least possible outlay?"

As a class, farmers are as free from base ignorance as the men of other voca-

tions. They, the farmers, know as much about their business as lawyers know about law, or ministers theology, or merchants mercantile life. It is a fact, that as many farmers meet with comparative success in their vocation, as the men of any of the professions, and Dagobert said to Jean Val Jean, "There's nothing that succeeds like success." Yet the farming community does not avail itself of all the opportunities that offer of qualifying for the greatest usefulness. There are those living on good land in Indiana, and in reasonable wealth, who are

INEXCUSABLY IGNORANT.

You might expect, that from force of surroundings, no one would be without a general knowledge of farm and farm products. But many are not only ignorant of what the world calls knowledge, not only without information on general subjects, but equally ignorant of all the requirements of cultivating crops and raising stock, and without industry and moral honesty. These are the moral bankrupts of the farming community who inherit their lands and in due time dispose of them by mortgage, and then whine and complain at the failure of the crops, or the austerity of the money lender. For them there are no schools. But to those who have a mind to learn and to do better each succeeding year there is, and ever will be, room for improvement. Very many who honor education, and set up high claims for themselves in the pursuit of knowledge have not yet learned that education is, first of all, honesty, and that honesty is everything. Either by nature, or by grace, the human mind was created in harmony with the mind of God. And that principle is not weakened by the development of human character, but strengthened. And, education is much more the giving of character than it is the acquisition of knowledge. Our schools have not always been honest with us. They have given us

FALSE NOTIONS OF FARM LIFE

In leading too many to believe that schools and colleges fitted them for something other than farming. Too many good farmers have been spoiled in making too many poor preachers, poor lawyers, and poor merchants. He does not waste his greatness on the desert air, who seeks the refinement and polish of the highest intellectual development, that he may plow and sow and reap. A plain statement of facts to the school boy, that learning and ability are in demand, and that greatness can be achieved on the farm, would help very many to a right start in life, who have found, too late, where they had made their mistake. A broader and more general knowledge would lead to a better appreciation of what is offered to him who makes farming a systematic business by first having the most thorough culture afforded by the schools. I have no sympathy with that oft repeated statement, that "Anybody can farm." At least half of the men who are now trying it, do not meet with such results as they expected. Honesty in the outset would save us from many of the misfortunes that afterwards overtake us. Too often every other profession is magnified and farming minified. A false estimate is put upon all that is to be done on the farm, and no true conception is given of what is to be done when we leave it. Again, there are two classes of men found in every community, exactly at opposite extremes—the criminal and the best citizen—who are largely

recruited from the farm. The coming of the young man, and the young woman, too, as to that matter, from the farm and home and happiness, to the city and to crime and want and misery, is an every day occurrence. Talk with the men in prison and you would be surprised, as I have been, to hear from so many of them the expression,

"WHEN I LEFT THE FARM."

With most of them it has been want of character, just such as a liberal education would give to any man, that made them susceptible to the temptations of city life. "To be forewarned is to be forearmed." Sometimes the warnings have come, but too late. Once into the maelstrom of sin and wrong and there is no escape. There is this difference, however, between the criminal from the country, and that from the city; the farm man has had a somewhat fair start in life and then fallen into crime through temptation, while the town man grew up a criminal and scarcely waited to reach his majority until he was convicted of crime. Yet too great a proportion of the ruined men in this nation come from the country. Even those who have done nothing more than complete the course in our common schools have usually been fairly established in character, and have not so easily fallen victims to their own ignorance. The educated man may be a criminal, but there is no kinship between crime and education. The abettors of the deepest crime are necessarily shrewd, designing men. They have knowledge. They know men. But as for themselves, they are without character, the first outgrowth of all true education. And many of the vilest men are basely ignorant. It is not too trite a saying to bear oft repeating that: "Ignorance is the mother of vice." On the other hand, men have gone from the farm into places of trust, the highest to be found in the government of a great nation. From the cabin of the West, from the tow-path of the canal, the greatest men of the age have gone to the greatest positions. These men without exception, have been lovers of books and have been successful, because they have been educated. There is a genuineness about the freedom of farm life that tends to develop the

BEST ELEMENTS OF HUMAN CHARACTER.

There is no blending of the true and false in nature. Year in and year out she repeats her lessons to the boy as he grows to manhood. And if that boy is only allowed, or made to study books so as to analyze these lessons and apply these truths, his will indeed be a most fortunate life. And no after remedy, applied never so skillfully, will atone for neglect in this particular.

The merest sentimentalism has relegated the educated man to some other pursuit in life than that of tilling the soil. And where here and there some farmer boy has succeeded in acquiring some knowledge of nature and science, along with that knowledge has come the idea that he is too smart a lad to remain on the farm. He never studied that he might be a farmer, but that he might be anything else than a farmer. It is the meagerness of education among the farming class that has tended to drive the aspiring into other vocations. Equally as damaging has been the growth of that idea: That a simple knowledge of the time of planting and harvesting was all that successful farming required.

THE CARES AND ANXIETIES

Of professional, or mercantile life, are not the belongings of the industrious farmer. He is free, as the men of the cities are not free. Too often, if the boy shows unusual signs of application, he must forthwith be educated for a lawyer, or minister, or teacher. The duller one is just suited for the farm. The parents stint themselves to send the one to school, that he may be a lawyer; the other grows as the corn grows. One is prepared to leave the farm; the other is forced to remain and cultivate the crops, as best he may. Too many farmers have not been fair with their calling or their children. They have dreamed of ease and comfort in other vocations, because they have known nothing of the trials connected with any save their own; and they have rummaged the garret and cellar, the hay mow and wheat bins; and arraigned the seasons, each in turn; and have analyzed the snow and mud, the heat and cold; and have gone abroad in winter time and remained at home in the summer; and have turned earth and heaven upside down to find the miserable side of farm-life. I assert it in behalf of the young men that no calling demands greater breadth of character, or more general information than that of farming. It is not enough to read and write. He who wins laurels on life's battle-field must know how to wield his sword. He who measures the greatest successes in cultivating the soil must know how to use soil and seed. Whenever the majority of our agricultural men are

MEN OF THE BROADCAST CULTURE.

The vast resources of Indiana's soil will have been multiplied many times. I should never clear more acres of land to raise more corn, but simply work out one or two problems in addition, in the brain arithmetic, give more mind power, which comes from the use of what we have, to those of us who are to cultivate the land already cleared.

The nature of the soil, the effect of fertilizers, the rotation of crops, the relative value of products and stock raising, are all practical questions that are best solved by him who has a correct general knowledge of science and trade. To know the value of certain soils is to be acquainted with the food of certain cereals and plant life. Then you must in some degree be a geologist, botanist, and scientist, as well as an agriculturist. In very few instances have the mines of Indiana yielded their wealth to the original owners. Other men could see through the soil and rocks. They saw nothing beneath the surface of the earth. No chemical analysis could give them the faintest idea of the elements of the soil; no artesian well to the earth's center could reveal to them the geological ages, and tell the wonderful story of past periods. But men from the mines of the old world came and saw in the outcroppings the exhaustless wealth of bituminous coal. What was rightfully ours to dig and enjoy we allowed others to purchase for a song, and we agreed to do the singing.

But we have treated the surface of the earth most shamefully. There is not an acre of cleared land in the State that would not have been better to-day than when the first corn was gathered from it, if proper treatment had been given. The

SIMPLE ROTATION OF CROPS

Would produce that result. Yet how many multiplied thousands of acres of poor land have we?—land too poor to be cultivated. Few farms in the State that have not suffered from bad treatment from some one, if not from their present owners. You have not a ten-acre field with strength enough left to produce a fair crop, that could not be made largely more productive, by giving it one year to corn, one to oats, two to wheat, one to clover and one to rest, another to wheat, and one to rye. This order pursued for an ordinary lifetime would double the yield in all of the crops, the rye and clover being used as fertilizers and for pasturage. We are not excusable for having poor farms when we have done our own clearing. I am perfectly safe in saying that half of the land in our State has never been farmed with a view to keeping it up, much less to increasing the yield it might make. It has been thought enough to gather a living for the present.

Again, a farmer ought to be an economist, not parsimonious. And the elements of economy can only be fully apprehended by a drilled mind. Labor as well as products must have its proper estimate and be used to the best advantage. The waste on the farm is often more than the increase or profit. Take, in the State at large, the one item of timber. The forests which our fathers ruthlessly deadened and burned up would be worth more to us to-day than all the profits on half the cleared land in the State. A proper knowledge of

THE LAWS OF ECONOMY

Three quarters of a century ago would have saved much of the yellow poplar and walnut timber then standing. I am justified in saying that one-half of the cleared land in the State has been brought into cultivation at a total loss of all the forest that once occupied it. And I am equally justified in saying that one-half of the cleared land, properly cultivated from the beginning, would produce as much as the whole area, as it has been and is now managed. That same knowledge of the laws of economy would have taught our fathers, what it has not yet taught us, to put our own forest trees in seed or sprout, as could easily be done on every acre of worn-out land, instead of turning it over to briers, sassafras and persimmon sprouts. Our legislators have not yet seen the necessity of making it the duty of owners of worn out lands, to put on every such acre a certain number of trees of useful kinds of timber. This will be done when our legislators are economists. And a century afterwards those who live will see how well we planned.

Much of the stock in Indiana is unsheltered, and for that very reason many do not realize on the investment.

COMFORT AND CORN MAKE FAT CATTLE,

And fat cattle make a ready and profitable market. The severity of our winters as well as a fellow feeling for fellow animals demands shelter for every head of stock kept on the farm. Nature herself is a great economist. She is careful of all things. Nothing is lost. Whenever it becomes useless in one form nature con-

verts it into another, and thus applies an endless economy. We need only look and learn. Yet thousands of acres of corn are cut from the ground, stalk and ear put into shocks, and allowed to waste the winter through. Exposure of stock requires an increase of food, and exposure of the food lessens the supply. Take the State over, the wastage of many of the farms equals, or even exceeds the profits; or the profits might be double what they are by applying the simple law of saving. It is not that farmers are more thriftless than other men, but the very plenty on the farm, coming as it does altogether in the few summer and autumn months, makes a man think that he can not use it up without an effort. And the sleek herds in the shade by the brook in the summer time, and growing fat on the very grass that carpets the house in which they live, seem to say to a man that they shall never need any other shelter. So hundreds of farmers scarcely have enough to live on, and hundreds of cattle barely live the winter through.

Our schools are at fault in sending us out into life without knowing how to apply our knowledge to meet our own wants. We have none too much of one single science that is taught in school, but we ought to have at least one additional study from the primary grades up, to be called the Science of Economy, or common sense about life in general. Then, a wholesome statute compelling every child to be sent to school eight months each year, from eight until fifteen years of age, would, in one or two generations, work some wonderful changes in the way our work would be done. Many do no better, because they see no better way. One profession well followed, one thing well done in life, is vastly better than a dozen things half done. It is a principle of economy, more so on the farm than elsewhere, that everything should be done well and on time. "There is a time for everything under the sun." It is little worth to put up the fence and fasten the gate after your neighbor's hogs have destroyed the potatoes.

THE BICKERINGS AND SOCIAL DISTURBANCES

Of country life are usually the outgrowth of ignorance. There would be fewer lawsuits, and a less number of family feuds, were the masses more generally educated. The man of character and general information is not always found settling his differences in court. There is not a county without some farmer in it who, for some petty grievance, very likely imagined, has lawed away the entire profits of the farm, and very often the farm itself is mortgaged to stay some court proceedings. The narrowness of some minds is remarkable, and the vindictiveness of a narrow mind has brought ruin to many a man. In many instances whole neighborhoods have been disturbed and the social life of the community destroyed, church organizations have been broken up, schools have been interfered with, and sometimes the houses burned, brothers and friends have been made enemies for life, and, in short, a social war has been inaugurated because two men have been so basely ignorant as to go to law to maintain some supposed right. The diffusion of light dispels the darkness, so a better moral character and general intelligence dispels this social darkness. Men, blinded by prejudice and ignorance, know no moral equity. Much of the pleasure of life in the country has been destroyed by this constant spirit of

revenge. We do not plant nightshade to raise sage leaves, nor do we encourage ignorance as a remedy for social poison. Let in the light of a fair education and the gloom of ignorance will be driven away.

GOOD BOOKS ARE ALWAYS FRIENDLY

To a man and his house, and some culture must be had before they can be appreciated. We are afraid of the bite of a snake, but we let idleness of the mind, a worse poison than the venom of the viper, bite to the death the pleasures to be had from reading good books. Evenings at home, in an informed household on the farm, have a priceless value in shaping the lives of the young. The home life, indeed, is the destiny that fashions the character of the young man, "rough hew it how you may." The great question of the age among moralists is: How to save the young men? And with farmers: How to keep the boys on the farm? and, save them for God and home and native land. I believe the answer is found in the higher education of the masses. Give the boys a chance to know what there is to know and such a field for thought will open up, that the mind as well as the hands will be too busy to see the dark side of farm life. The casual observer, and, perhaps some honest investigator can not see this as an actual result, when comparing facts of the past and present. To many, exactly the opposite seems to be true—educate the boy and he leaves the farm. But the improvement and incentive in all trades and professions must be recognized and met by a counter and stronger inducement given to the young men to remain on the farm. It is of no avail to let them go and then lament because they are gone. You must plow the corn while it is growing and not after the ear is formed. The young men must love the farm and surroundings while they are young men, or no after teaching can change the habits of life once formed. The sameness in the surroundings of country life gives fixedness to thought and begets a thirst for knowledge in the inquiring mind. If that thirst can be satisfied without bidding farewell to the manor to which he was born, I think the son will most likely be what his father has been. But to leave him to chance and without somewhat to induce him to stay and till the soil is more an invitation to go than to remain. Life is more than the ten hours daily labor.

The boy at ten is given the work of running errands for all the farm hands a kind of

SERVANT TO EVERYBODY,

As well as doing the chores about the house. During the winter months he must go to school, giving the mornings and evenings to helping about the barn and house. When able he begins to make his hand at all kinds of work, and Darby's work is never done any more than Joan's. Then he can only go to school when there is nothing to do. On rainy days and at odd times he must pick up enough of the common school branches to enable him to attend to the business of the farm. Everything that he studies must be intensely utilitarian. There are, to him, no pleasures in learning. From morning till night "he plods his weary way," until the dreams of a less constant calling lure him away. With the mental powers quickened into zealous activity, with some learning and leisure, and a better ap-

preciation of the work to be done, the boy would grow to manhood wedded to country life and to his daily work. Make what you can make out of his daily task, that it be not too burdensome and with no glare of sin on the soul, and you will not find him leaving this life for the uncertainties of other professions. It is not enough to know that the corn grows; but every one come to manhood ought to know how it grows and be able to give the chemical properties of stalk, and blade, and ear. It is not enough to see the wild flower and catch its sweetness from the morning air; but even the boy

UGHT TO BE A BOTANIST,

And be able to give an analysis of stem and flower. And this, not simply for the sake of knowing it, but to lend enchantment to that life that seems to be so much routine. If he be a naturalist, and a lover of animals, the field and forest and air and water could furnish him with specimens the year round. No other calling gives such variety for entertainment, and yet no other class of men make so much drudgery out of any calling.

Education is self-reliant. It introduces the young into the best society without any of the uncertainties of waiting until they are old enough to seek associations for themselves. A man of learning and taste will know exactly the company his children are keeping, by the books and papers he furnishes them to read. The cost of these books and papers has ceased to be an item; and whenever the average farmer does not furnish them to his children, making that an excuse, it is the basest kind of stinginess. If he allow the stalk of corn to grow without the use of plow and hoe, the weeds will soon choke it out and he will never gather an ear from it. If the boy's mind is pushed up into the world and society without the presence of good books, or opportunities for proper education, the foul weeds of ignorance and sin will soon choke out every possible hope of anything good. From some cause the boy from the country is not looked upon as being as smart as his cousin in the town. In fact the town boy calls him "green" and taunts him if by chance he is on an errand to the village. He is

NOT AS SMART

In some "ways that are dark." There is only room for such taunts because his days in school have been the short days of our short winters.

Be it said to the shame of a State where millions of dollars are invested in her schools that so many of her sons can neither read nor write. And be it said to the shame of the farming community that so many of the boys from the country are ruined because they are not allowed the full privileges of these same public schools. But the very

BULWARK OF THE COMMONWEALTH

Is higher education. The bone and sinew of her citizenship are found in her rural districts. The cities, the centers of population, may give tone and character to the prevailing fashions, and point out the polite way of life; but the country must ever supply the staff that supports that life. In Indiana, the cities never feed the

country, but the country districts are the feeders of the cities. The population does not spread from the centers to the outskirts, but from the outskirts, it gathers to the centers. The cohesive force of nations is not in the soil, but in the trades and professions, and they draw men to them whether or not qualified. This man from the country—this woman, too, is coming to be—is a part of the body politic. As well the hand might attempt to get on without the arm that bears it, as the city or

TOWN, WITHOUT THE COUNTRY.

Yet, in the city, the uncertainty of a farmer in business is proverbial. He is accused of all sorts of schemes to defraud the honest member of the board of trade. He bargains his hogs at a stipulated price, and breaks the contract because of an advance; he engages his wheat and does not deliver it, since there is a prospect of better figures. But I resent it as a gross insult and libel on the profession, and say: "He is oftener sinned against than sinning." His very want of knowledge of anything outside of his own line of trade in supplying his farm, puts him at a disadvantage among the trading classes. When he sells, somebody, not himself, prices his produce; when he buys, that same somebody, not himself, prices his purchases. This is the rule. It has never been considered necessary that he should study political economy that he might be familiar with the laws of trade, and thus defend his own interests in disposing of what his labor has produced. It is enough that he should know how to say: "What are you paying for corn, to-day?" In that time coming, the farmer will be a man of leisure and letters, as well as a man of means. He will know books that he may know men, and trade, and be more self-dependent. He will house his stock and corn, save his growing timber, and plant forest trees on his waste lands. He will be a student of nature, of earth and air, and water, and living creatures and plant life. And, as much as anything else, or more, every Indiana farmer will be an economist; and his own thrift will enable him to enjoy what his own labor has produced, under the protection of the best Commonwealth upon which the sun smiles.

SORGHUM; ITS SUCCESS AND VALUE.

BY PROF. H. W. WILEY, STATE CHEMIST.

Delivered before the Annual Agricultural Convention, January, 1883.

The following valuable paper, read before the Delegate Board of Agriculture at its annual meeting should be read by all farmers. If they are not intending to engage in sorghum culture at once, they will do so no doubt in a few years.

SUCCESS.

Let me make the sweets of the nation and I don't care who makes the laws. Sugar, in some form, has grown to be a necessity of American life. Pure white

sugar for coffee and white cakes, yellow sugar for preserving fruits and baking colored cakes, sirups of all kinds and qualities for the table use and for cooking purposes are seen in every family. No difference how humble or how poor the American may be he will manage to have his finger in the sugar bowl. The consumption of sugar is a measure of progress in civilization. In the most advanced society, the greatest quantity of sugar is used. Childhood without candy would be Heaven without harps.

I doubt if there is any other one article of food that has conferred as much happiness on man as sugar. Bread and meat are taken to satisfy hunger and preserve life, pepper and spice to give relish when hunger is appeased. Sugar, however, is the pure esthetic in taste. It is the poppy and the lily of the gastric nerve.

SUGAR IS THE BEAUTY OF FOOD,

it is the color and tone of the gustatory landscape. But sugar by any other name doesn't taste as sweet. When sugar is called sorghum, all of the esthetic in it suddenly dies away. Sorghum has about the same effect on the refined taste that "nigger" had on the sensitive political ear thirty years ago. All that is nasty and green and sticky and rancid in the sugar vocabulary is associated with it. Sorghum is surrounded by an ocean of prejudice which is well nigh unnavigable.

So much that has been thoroughly vile has been characterized by that name as to make us cease to wonder at the prejudice. But this only makes it more necessary to go to work in some rational way to remove it. And this is the first factor in the problem of the success of sorghum. I have often thought that the best way to overcome this prejudice was to drop the word sorghum altogether. It is just as easy to say "cane sirup" as "sorghum molasses." Many persons would be willing to use "cane sirup" who would turn up their noses at sorghum.

PURE CANE SUGAR,

amber sirup, orange molasses—these are names which we could legitimately use. But, after all, this would be cowardly. It would not be meeting the difficulty, but going around it. You have all heard of the great Roman who, having incurred the enmity of the Senate, was, in derision, made Commissioner of Sewers; but he discharged the duties of his dishonorable office in such a business like way, with such care and fidelity, and with such profit to the public health, that ever thereafter it was regarded as a most honorable distinction to be made Commissioner of Sewers. So, I think the best way to overcome the prejudice to sorghum is to make it of such excellence that all kinds of sweets will be enhanced in value by calling them sorghum. Can this be done? I answer, yes. Not at once and altogether, but slowly and little by little.

Chemistry and practical skill are now joined hand in hand in this great undertaking, and when two such potent forces are united, some good result will follow sooner or later.

What is this

SORGHUM "TWANG,"

This so-called "green taste" (what an expressive figure!) which is so characteristic of the common products of the sorghum industry? It is due to several things—

First, the natural acids of the sorghum juice are usually left unneutralized in the ordinary processes of manufacture. These are of various kinds, their exact separation and distinction has not been fully secured. Among them has been found acetic acid, which, of itself, would give a bitter, acrid taste.

Next we have the chlorophyl, or green coloring matter, which proves so troublesome in making sirup or sugar. This is generally imperfectly separated, and is the origin of the expressive phrase, "green taste."

Then we have various gums and other organic matter, often amounting to as much as one or two per cent. of the juice. Further, there are other bodies resembling albumen, coagulable by heat, and these bodies are also imperfectly separated. All these bodies, in addition to the real sugars, have been found in the sorghum sirup and sugars of the past. None of them will be found in the

SIRUP OF THE FUTURE.

Improvement in the process of manufacture, therefore, is the first great step toward securing the success of sorghum. Sugar of high grade has already been made. The future must see sorghum sirup the most prized on the tables of rich and poor, valuable alike for its purity, its flavor and its wholesomeness.

The next problem is, how can these foreign matters be removed? I wish I could answer this question. Chemistry is still seeking methods to accomplish this desirable result. Although complete success has not yet been reached, still great progress has been made. For neutralizing and removing the natural acids of the juice no agent yet discovered is equal to lime. It is cheap, abundant and effective. The use of lime, however, is attended with some danger. If too little is added, the desired effect is not produced; if too much, the sirup is made dark and bitter. Only by the use of some re-agent can the graduation of the lime be properly effected. This re-agent is that well known coloring matter, litmus. Pure milk of lime should be added to the cold or slightly warmed juice until it turns blue litmus paper a slight purple tinge. This is the place to stop.

MORE MISTAKES ARE MADE

with the use of lime than in any other way in sorghum manufacture. The reason of this is that the great majority of makers use no litmus, but rely upon the eye. The eye, however, is not yet sufficiently educated to detect the right point, and I doubt whether it ever will be. Here is where the multitude of farmers who make their own sirup-most generally fail. They make enough, the color and body are good, but the flavor of their sirup is almost universally bad. This must be remedied before sorghum can be regarded as having reached its full measure of success.

In regard to the chlorophyl and albuminoid bodies, the most successful method of depuration in use is by heat. A high temperature coagulates these bodies, and either brings them to the surface in the form of scum, or puts them in a condition to easily settle to the bottom of the liquid when opportunity occurs. Here we find another obstacle to the success of sorghum manufacture: While all makers, without exception, remove the scum, very few give the particles of coagulated matter not

removed by the scum an opportunity to subside. Anyone who has not seen it would be surprised at the large amount of feculent matter that will be found in the bottom of a settling tank after twelve hours run. Generally all this matter is allowed to remain, and when the sirup is finished it is so thick that these particles are held in suspension, or subside with great difficulty. The heat used for separation of these matters should be applied evenly and as rapidly as possible, and be under complete control.

Steam heat seems to be best adapted for this purpose, but its use in a small way is not always practicable. In addition to heat, skimming and settling, the process of filtration must be used in order to secure the greatest possible purity of the juice. The juice, as it comes from the mill, should be well filtered in order to remove all foreign bodies, such as seed, particles of stalks and blades, and any starch which the juice may contain. This starch, if allowed to go into the fire or steam pans, becomes soluble and adds that much to the gums of the finished product. After defecation and settling, the juice should be filtered again, through filter bags or a filter press. The maker can not expect to secure a good product unless the juice goes into the evaporator of a light amber color, and perfectly transparent. When the juice has been reduced to a semi-sirup it should be allowed to settle, and be filtered a second time before it is put into the finisher. When the maker faithfully follows out the above plan of purifying his juice, he may be sure he is on the right road to making sorghum a success. Unhappily, no practical method is known for entirely removing the gums, or gum-like bodies, found in the finished product. As far as sirup is concerned, this is no great matter, for these gum-like bodies are not wholly unpalatable or innutritious. But if the object is to make crystallized sugar, then these non-crystallizable bodies are greatly in the way. We may dismiss at once as impracticable all attempts to remove these gums by sub-acetate of lead, alum and other injurious chemicals. Aside from the trouble and cost of such processes, the danger of leaving in the product some substance inimical to health is so great that the conscientious manufacturer is not willing to take the risk. Perhaps the most successful of the means yet proposed is to filter the semi-syrup through animal char. Bone black is the Hercules which cleans the Augean stables of the cane product. Sirup filtered through animal char is greatly improved in flavor or color, or both, and is much easier crystallized than without such treatment. The phenomenal success of the Champaign sugar works during the past year is a practical illustration of this principle. Much is yet to be accomplished in this direction, and there are great hopes that much progress will be made in the near future in the direction of purification of the sorghum juice, looking to an improvement of the product.

Another hindrance to the success of sorghum has been the extravagant claims of enthusiasts. Nothing is ever gained for a cause by an overstatement of its claims. On the contrary, all such over-estimates are rather a positive injury to the cause which they desire to benefit. It is no help to the sorghum industry to boldly assert that a thousand pounds of sugar are easily made from every acre of cane. The question is not what will be done in the future, but what can be done now? Certainly it is true that a thousand pounds of sugar can not now be made from each acre of cane.

The most favorable result of the Champaign works was only 700 pounds per acre, while their average was but a little more than 400. On a practical plan, the best heretofore in use, this company has not realized the extravagant claims of many theorists. It is true that each acre of cane can be made to produce a thousand pounds of sugar, but only a little more than one-third of it has yet been obtained in a crystallized form. What ought to be claimed now in the sorghum interest is rather a possibility than a reality. We can justly claim a bright future for sorghum, but to assert what is not true of it can only be productive of injury to the cause. Dr. Loring, Commissioner of Agriculture, forcibly presented this idea in his address before the Mississippi Valley Cane Growers' Association, of St. Louis, in December, 1882.

Another hindrance to the success of the sorghum industry is the ruinous competition into which it has been brought with the sirups and sugars made from starch. The bright, clear sirup, made from starch and known as glucose, is excellently adapted to give body and color to a sirup, and is used in vast quantities for sirup making. Aside from the sorghum sirups in our local markets, it is hard to find a commercial sirup which is not largely composed of glucose. In six sirups purchased in the open market by the State Board of Health and analyzed in my laboratory, four were found to be almost exclusively made of glucose. In sugars this adulteration is not carried to such an extent, and yet the quantities of sugar placed on the market and adulterated with so-called grape sugar, are enormous. I am not here to say anything against starch sugars. When they are properly made I believe them to be wholesome and harmless. But, as is well known, starch sugars and sirups are not as sweet as those made from cane and beets, and larger quantities of them have to be used to produce the same sweetening effects. The sorghum industry asks no bounty and no protection from the laws. It only asks to be allowed a fair chance. This chance can never be secured as long as starch sugars and sirups can be sold as products of the cane. The farmers of this State, nearly all of whom are directly or indirectly interested in sorghum growing, should demand of the Legislature the passage of a law which would require all sirups and sugars to be sold under their true names. This could work no injustice to any one, while it would secure perfect safety to all. Let straight sugar be sold as such. If it is mixed with grape sugar, this mixture should be made known to the intending purchaser, and also the per cent. of adulteration. The same plan should be pursued with sirups. The kind and grade of the sirup should be plainly marked, and the degree of adulteration distinctly stated. Every purchaser would then know exactly what he was buying, and could intelligently "pay his money and take his choice." Heavy penalties should be affixed for violation of this law, and thus sorghum would be placed on an equal footing with all other sirups. It would be well for this Board to carefully consider this idea. You represent the great agricultural interest of the State, whose importance and influence were so graphically and eloquently portrayed by Commissioner Loring last night. Such legislation as I suggest would protect this great interest, especially against the frauds which I have mentioned. This is especially true of mixed sugars, which are exposed for sale in the rural districts rather than in large cities. The expenditure for sugar and sirup

is no small outlay of the farmer's money. If he saw that he was likely to buy an adulterated article, he would be more likely to turn his attention to a domestic supply. Indeed, I believe it will be apparent to you all that such a measure of protection and justice will prove a greater stimulus to the sorghum industry than any bounty or premium could possibly be.

Another obstacle to the success of the sorghum industry is the small way in which the manufacture is carried on. This operates hurtfully in several ways. The skill and experience necessary to the successful prosecution of this business can not reasonably be supposed acquirable by every one. Years of study and practice must be devoted to this industry before the best results can be obtained, and it would not be profitable for every one to do this. This skill is best acquired by some one or two persons in any given locality, and the manufacture of sorghum should be given over to them. In this way the skill of a very few persons would be made profitable to a whole community. Again, the machinery of a small establishment can not be as effective as that of a larger plant. From the best information I can gather, the ordinary horse mill in use for grinding cane does not express more than 40 per cent, by weight of juice. A large and heavy mill on the contrary will give 55 to 70 per cent. Here at once, in the mill alone, is a saving of nearly one-half. It is true that the best mills do not express all the sap, and the bagasse from them always contains a notable per cent. of sugar, amounting to from 10 to 20 per cent. The future may see the diffusion process in use for sorghum as it is now in Europe for beets, but that time has not come yet. The best we can hope for during the next few years is a good mill that will yield 65 to 70 per cent. of juice.

What is true of the mill is true of the depurating and concentrating apparatus. Steam is far preferable to naked fire for boiling, and yet steam can not be used in a small way. The services of an expert, to see that all the processes of depuration, neutralization, filtration and concentration are properly carried on, will cost not more for a large than a small plant, and thus a notable saving in the expense of manufacture can be secured. In fact, in every stage, and in every way, the success of sorghum making would be greatly improved by farmers uniting in the erection of a central works capable of taking care of 100 to 200 acres of cane. I would urge this idea of co operation on farmers, since I believe the successful future of the Northern cane industry depends largely on it. I know it is the desire of many that some simple means may be devised by which every farmer could make good sugar and sirup for himself, as he raises his own pork and potatoes. I admit at once the great desirability of such an attainment, but the present state of the industry compels me to say that that desideratum has not yet been reached, and that the indications of doing so are not of any positive value. A co-operative establishment in which each farmer owned a share, and to which he contributed a corresponding quantity of raw material is about as near a realization of sorghum automatism as we can at present expect.

Another advantage of co-operation is the fact that the product would be of uniform grade. This is one of the greatest objections which the seller of sorghum sirup has to encounter. As made in the small way, the sorghum sirup of com-

merce is everything, from tar to honey. This will not do for grocers. It is their interest to have a uniform stock. They would rather have a uniformly indifferent article than to have it good, bad and indifferent. A large establishment would turn out a uniform grade of products, and thus enable the farmer to obtain a better price for his surplus than would otherwise be possible.

I have discovered some of the more prominent obstacles to the success of sorghum, rather choosing the negative than the positive side of the argument. Positively the use of sorghum in this State has worked its way slowly along, especially among farmers, until within thirty years it has grown from a small beginning to find its way into almost every farmer's family. Sorghum is the democratic and domestic sweet. It is yet plebeian, but is gradually growing on its imported patrician kinfolk. We do not want to see the day when it shall cease to be plebeian, but we want it to become patrician also. What is good enough to sweeten the cup of the plow-boy ought to suffice for the millionaire.

VALUE.

I have taken so much time to discuss, although superficially, some of the problems connected with the success of sorghum that I have but little left for value. In fact, the value of sorghum culture is commensurate with its success, and it is hard to separate the two ideas.

In this part of my theme I shall dwell on the financial aspect of the subject. The crucial test to which every industry must be at last subjected is, "does it pay?" If the answer is in the negative, that industry "must go," no difference how beautiful it may look theoretically. "Does it pay?" Our farmers will not raise their own sugar and sirup if they can buy equally as good for less money. Farming is not a sentiment, but a business. The sentimentalist had better keep out of agriculture and turn his thoughts to sunflowers and knee-breeches. Of course I do not mean by a sentimentalist, an experimenter. They are quite different genera. Many persons have made money in the sorghum industry, and many have lost it. Therefore no definite answer to the question can yet be given.

During the late war sorghum making paid, even when carried on in a small way. But with the return of peace came a return of foreign sugars, and the sorghum industry sank into a lethargy from which it is only just now recovering. But it is now making rapid strides as a great agricultural product. From the Commissioner of Agriculture I have just learned that reports from parts of twenty-eight States show that last season there were produced 500,000 pounds of sugar and 8,000,000 gallons of sirup from sorghum cane. This appears to be not more than one-fifth of the product of the country as far as sirup is concerned. It is rather a startling fact that nearly one gallon of sirup was produced for each inhabitant of our country.

It is estimated that the present crop of New Orleans molasses will be about 9,000,000 gallons. This affords a measure for comparing the relative magnitudes of the two industries. New Orleans sirup will soon belong to Lilliput, and sorghum to Brobdingnag. We would be wise to make friends with the coming giant.

I desire now to examine more particularly some of the sources of the value of sorghum.

SUGAR.

From twelve measured acres of Orange cane, the Champaign company made during the past season 8,400 pounds of fine C sugar, selling readily at eight cents per pound. This was more than an average of their whole yield, but shows what can be done with cane under favorable conditions of growth and manufacture. In addition to this, each acre yielded a little over 100 gallons of black but well flavored molasses, worth thirty cents per gallon. The yield per acre in money was therefore \$86. I have not their figures to show expense of raising and manufacture, but the proprietors told me that they made a handsome profit. First of all, then, we see that sorghum is valuable for the sugar it will yield.

SIRUP.

In the matter of sirups I can speak from a more practical experience. A small company, in which I am interested, worked the cane from 54 acres, 42 of which were measured, and the other 12 estimated on the basis of the yield of the measured tracts. The total weight of cane on the 54 acres was 619 tons, being a little more than 11 tons to the acre. The total yield of sirup was 11,000 gallons, some of which shows granulation, but not enough to spoil for use as a sirup. This shows a yield of over 17 gallons per ton, and 200 gallons per acre. The cane was mostly grown in Wabash bottom land, subject to frequent overflows. The cost of the plant for working this cane was \$6,500, and the cost of the cane and manufacture \$3,300. All of the sirup has not been sold yet, but the indications are that we will realize about 38 cents a gallon for it. This would give \$4,180 as the total value of the sirup. Deduct \$3,300, cost of manufacture, and we have left \$850 net profit. Deduct 10 per cent. wear and tear of plant, equals \$650, and we have left \$200 net profit, about three per cent. on the investment. The practical answer to the question therefore is, "It doesn't pay." But it must be remembered that the plant I describe is large enough to work up 150 acres of cane at eleven tons to the acre. Had the company had all the cane it could work, our financial exhibit would have been much better, as you can easily see. I beg further to state that eleven tons per acre is more than the cane grower can hope to realize year after year. The cane referred to above was all grown on first-class soil and with reasonably good attendance. The soil would have yielded, under the same conditions, sixty bushels of corn per acre. Two hundred gallons of sirup is therefore more than can be hoped for per acre as an average crop. But I give only the figures as they appear in the records of the company. With the year's experience to help us, it seems probable that we can reduce the cost of production from thirty to twenty-five cents per gallon, and thus handsomely increase our profits. I confess, however, I do not see how the 100 to 150 per cent. can be made, which many have boasted of as the proceeds of their work. There is also a fair prospect of being able to get a better price for the sirup as soon as its merits have been thoroughly tested by the community. The sirup is of an excellent flavor; in fact, many refuse to believe that it is sorghum, and think it some artificial mixture made to imitate maple. I think another year will greatly improve the flavor, and perhaps lighten the color. At present, however, it seems quite impossible to make sirup of fine flavor and light color. The lime will always

deepen the color of the finished product. Taking all things into consideration, I think I may safely say that the value of sorghum so far, as a sugar and sirup making product, has been about equal to the cost of its raising and manufacture. Further, I may add, that there is a reasonable prospect of realizing a fair profit from it in the near future.

SEED.

The value of the seed of sorghum has been theoretically overstated and practically neglected. From analyses now going on in my laboratory, and which will be published in detail in due time, I learn that the seed has a large percentage of starch, a fair percentage of gluten, a good deal of oil, and a little of a bitter principle which has been declared tannic acid. The latter statement I have not yet verified. All starch-eating animals eat the seed with avidity, but owing to the shape and hardness of the seed, their full nutritive value can only be obtained by first boiling or grinding. I have also seen excellent flour and cakes made from sorghum seed, and an excellent article of table hot cakes can be made, without doubt, from sorghum seed batter. But I do not believe sorghum will yield the amount of seed per acre which has been extravagantly claimed for it. Doubtless there have been acres that would yield twenty-five to thirty bushels of seed, but I have not seen them. I think an estimate of ten bushels per acre would come nearer the truth. The real value of sorghum seed is a problem which should be carefully worked out. I will be able, later in the year, to give exact data from forty acres; but under unfavorable conditions. The seed has all been stored, but not yet threshed out. Much of the cane was green, and therefore the present results may be taken as a minimum.

BLADES.

The blades of sorghum make a valuable fodder, but it is yet doubtful whether they repay the labor of gathering them. I have no exact data to offer with reference to the blades, but I do not think they can be regarded as adding much to the value of the crop.

BAGASSE.

The bagasse can be used with profit for many purposes. Where fuel is dear it can be burned under the evaporators or boilers, as is done in Kansas and Nebraska. The bagasse can also be returned to the field and used as a fertilizer. It may also be used for paper, as these specimens show. Bagasse can be worked for paper just like straw. This paper was so treated. For its profitable employment, however, it needs a little more boiling and beating than straw. The possibility of making the bagasse into a good article of wrapping paper is no longer an open question.

To recapitulate, sorghum is at present valuable for sirup, the seed is worth at least as much as corn for feed or flour, the blades for fodder, the bagasse for fuel, fertilizing and paper.

From a careful consideration of all the facts accessible in the case, I conclude that the sorghum industry is rapidly coming to the front with its claims upon the agriculturalist, but that its status is not yet sufficiently settled to entitle it to be

study. The curriculum of the agricultural college differs from that of the classical considered as an unequivocal nutrient and financial success. The prospects, however, are far from discouraging, and all who are engaged in the sorghum interest should continue to do all in their power to reach a permanent solution of the question.

AGRICULTURAL EDUCATION.

ITS PRACTICAL VALUE.

PROF. W. C. LATTA, OF PURDUE UNIVERSITY.

Delivered before the Annual Agricultural Convention, January, 1883.

The last quarter century of the history of this country marks an era in agricultural education.

Within twenty-five years our National and State bureaus of agriculture, the Grange, the agricultural experiment stations, and nearly all of our agricultural colleges have sprung into existence. During this time the various agricultural and horticultural societies and farmers' clubs have greatly increased in numbers and efficiency, and the development of the agricultural press has been remarkable.

To-day the influence of the National Department of Agriculture is felt throughout the United States; the Grange is a truly national institution; agricultural colleges exist in nearly every state in the Union, and we are inundated by a flood of agricultural literature on every conceivable farm topic, from mole-traps to the abstruse questions of soil fertility and agricultural chemistry.

So far as the furnishing of facilities for agricultural education is concerned, commendable progress has been made. Hence, it would at first seem that this kind of education ought to be popular and general; but I regret to say that I believe the reverse to be true. The agricultural colleges of this country are the most purely educational institutions that exist in the interest of agriculture; and yet, these colleges are to-day comparatively unknown and unappreciated by a large proportion of the farm population. While it is true that, in nearly every farm community, there is an enlightened element fully awake to the importance of this question, it is equally true that a majority of the farmers have yet to learn the value of a thorough agricultural education.

Indeed, I believe there is, among farmers, a wide-spread misapprehension of what constitutes such an education; and as many of these colleges of agriculture are still young, and their fruits hardly manifest, it seems proper at this time, to dwell at some length on the character of these institutions, the work they do, the influence they exert, and the benefits of the education they impart.

Most of these institutions are true colleges, having regular four year-courses of

institution in bestowing less time on the languages, and more on the physical sciences; in giving greater prominence to the economic bearing of these sciences; in imparting systematic instruction in theoretic and practical agriculture; and, lastly, in giving special attention to laboratory work and manual labor.

There is also a difference in the character of the instruction given. The student of the industrial college is required to study authors less, and nature more. So far as possible, the pupil is required to verify or disprove the statements of the text-book, by his own observation of natural objects and natural laws. Another point of difference is the experimental feature of our agricultural colleges. All are engaged, to a greater or less extent, in conducting experiments for the promotion of agriculture and horticulture. There is, further, a marked difference in the influence of these two classes of colleges on their graduates. While from 30 to 50 per cent. of the young men in our literary institutions come from the farm, probably not more than five per cent. of the graduates engage in agricultural pursuits.

Turning to the agricultural colleges, we find that 50 to 75 per cent. of the young men who enter are farmers' sons, and that 25 to 75 per cent. of all the graduates return to the farm or engage in some branch of agriculture. The high per cent. of farmer graduates from these colleges is especially significant, when we remember that a considerable number of the students in these industrial institutions neither come from the farm nor expect to follow farming, but are attracted thither by the practical character, the comparative cheapness, and the healthfulness of the education afforded.

Permit me, in this connection, to make special mention of one of these industrial colleges. I choose the one near Lansing, Michigan, because it is the oldest of its class, and a good illustration of what a purely agricultural college can accomplish. This college was located in 1855, in the woods. Over 300 acres of the farm belonging to the college have been cleared, and, to a considerable extent, tile-drained, by means of student labor. The college was opened to students in 1857. The graduates number 244, of whom 230 are now living. Of these 230 graduates, 40 per cent. are actually farming, and if we include those in allied industrial callings, 62 per cent. are engaged in pursuits for which their college course specially fitted them. What professional school can show so high a per cent. of its graduates in the profession for which they were educated?

But what are the benefits of agricultural education? They are two-fold, accruing both to the community and to the individual.

While our agricultural colleges are doing a good work for agriculture in their various lines of experiment, I believe they are doing a much grander work in gradually, but surely, building up an educated class of farmers who will, in turn, give dignity and rank to their calling. The future progress of agriculture in this country will be commensurate with the elevation of the agricultural classes. The agricultural colleges of the United States are yet too young to show marked results; but time will prove me correct in asserting that agricultural education is a prime factor in elevating the farming classes, and thus hastening the day when agriculture will not only be a highly honorable, but also a highly honored calling.

Let us next consider the benefits of an agricultural education to the individual. I will group them under four heads: Such an education makes farm life more con-

genial, promotes success in acquiring wealth, confers social standing, and enlarges one's sphere of usefulness.

We have to-day many discontented farmers who, seeing only the brown side of farm life, are engaged in farming simply because they think they can do nothing else. Many of our farmers' boys are dissatisfied with their lot, and some of them even seek an education as a means of emancipation from what they consider the hard, dull lot of the farmer. Then, too, our literary graduates, as a rule, have neither the taste nor the physical capacity for farming. All of these are, or would be, unhappy on the farm.

But the agricultural graduate who returns to the farm, does so not with the unhappy thought that he can do nothing else, but because it is his choice. His education has kept alive and cultivated his sympathy with agriculture, and conserved his physical energies. He has become a student of nature, and he knows that in farming he will be brought hand to hand and face to face with the forces of nature. As he engages in the various labors of the farm he is constantly an interested, intelligent eye-witness of the workings of forces of which he before knew nothing. Whatever his observations as he goes about his work, he is constantly on the alert to find the real causes of the phenomena that come to his notice, and the relation of these causes to the fertility of his soil, the curing of his crops or the health of his stock.

Do you wonder that he thinks less of his toils and hardships, and is happier in his work because of the great interest he feels in that work? We are all less conscious of our struggles and privations as we become absorbed in our labors.

Again, an agricultural education will confer material benefit on its possessor. The man who thoroughly studies the principles of his calling will more quickly and surely find out and establish the conditions of success. Particularly is this true in agriculture, with its complex relations and many unsettled questions. Every question, whether concerning methods or appliances, soil or seed, breeding or feeding, is thoroughly studied by the educated farmer, whose disciplined mind clearly distinguishes between cause and coincidence, inference and fact, between similar and identical conditions, between processes and results, between real and apparent, or full and partial success or failure.

Such a man is not only a light unto himself in his work, but he can get more light from others. He is better able and more apt to avail himself of the experience of his fellow farmers, and thus profit alike by their successes and their failures. He knows better how to utilize the results wrought out by our experiment stations, and he can also institute careful, though inexpensive, experiments for himself, by which he can determine the best means of keeping up the fertility of his soil, etc. He is able to classify, digest, and thus profit by the heterogeneous publications of the agricultural press; and this, indeed, is a great advantage. Many of the articles in the agricultural papers are beyond the comprehension of the average farmer. Conflicting statements and erroneous views also creep into the columns of these papers, and, although even the uneducated man knows that some views must be wrong, he is at a loss to choose the right, and hence he receives comparatively little material benefit.

An agricultural education will also aid the farmer in saving money in his farm

operations. It is generally the ignorant farmer who is duped by sharpers; who is led into expensive blunders in buying and selling, and who, therefore, exclaims the most bitterly against the hard lot of the farmer. But the farmer who is educated for his business can quickly tell when it will be unwise for him to invest in new machinery or make new improvements. He understands the subject of absolute and relative values as applied to his farm products; in other words, the relation existing between the feeding, manurial, and market values, and he can therefore tell when it will be sound economy to feed his farm crops or exchange them for manufactured foods. Again, a thorough knowledge of the conditions that affect the practical value of a fertilizer will often be a means of saving the farmer's money. For example, it is not enough for you to know that a fertilizer which sells at forty dollars, has a possible manurial value of forty-five dollars. You must know the practical value of that fertilizer on *your farm*. It does not by any means follow that, because the possible manurial value of a fertilizer is five dollars above the selling price, every farmer will make five dollars by using the article. One man may make five dollars and another *lose* five dollars, or even ten dollars, by the operation. The result, in every case, will depend on the nature and condition of the particular soil and crop; and these questions every farmer must determine for himself. Hence the value of an agricultural education, which will materially aid the farmer in the solution of these problems.

In the third place, an agricultural education will confer on its possessor social standing. An education greatly develops the social qualities and widens the social circle. The farmer graduate who is socially inclined, will find ready access to the society of intelligent, refined people in his own calling, and in other callings as well. He is a welcome guest in these circles because he is entertaining, instructive, helpful. True, he gives largely, but he is always the debtor, for in these refining associations he finds needed relaxation, wholesome diversion, and new incentives. Coming in contact with many different minds, his own becomes better balanced; and being subject to a wider range of elevating influences, he attains a broader and more symmetrical manhood.

Lastly, such an education enlarges one's sphere of usefulness. While this is true of any education, it is especially true of an agricultural education, which prepares one to enter a field comparatively unoccupied.

The professions are already crowded with educated men, while agriculture stands in need of men of this class. Men of special education are needed on the farm, that they may devise better methods of farming; in the friendly gatherings of farmers, that they may help to elevate the social condition of the agricultural classes; in the various agricultural societies, that these organizations may promote the highest interests of agriculture; and in our legislative halls, that agriculture may receive her just dues at the hands of our law makers. It therefore necessarily follows that the agricultural graduate who will enthusiastically devote his energies and his education to agriculture can not fail of enlarged usefulness.

To recapitulate briefly, our agricultural colleges beget and foster a liking, and bestow a special training for, agricultural pursuits. They educate *toward* the farm, while the literary institutions, as a rule, educate *away* from the farm. An agricultural education elevates manual labor and conserves physical energy, while class-

ical education is apt to ignore both. The agricultural graduate is at home on the farm, and has a real love for agricultural pursuits; while the literary graduate generally finds the office more congenial, and prefers a literary or professional occupation.

It therefore follows, that if our farmers' boys are to share the benefits of college education, and still remain on the farm, as most of them certainly should do, they should seek a farmer's education.

In conclusion, fellow farmers, I bespeak for these agricultural colleges your liberal patronage and support. Their success in the past may not have been equal to your expectations, for many of them have been, and some are still, laboring under great disadvantages. And the chief obstacle to their progress has been the indifference of the farmers themselves. Remember that they are *your* schools, working in your interest; and remember, too, that your earnest co-operation will greatly increase their efficiency and widen their influence.

THE INDUSTRIAL, COMMERCIAL AND SOCIAL ASPECTS OF INDIANA FOR THE YEAR 1882.

BY JOHN B. CONNER, CHIEF OF THE BUREAU OF STATISTICS.

Delivered before the Annual Agricultural Convention, January, 1883.

The plain presentation of facts in regard to the industries, commerce and social affairs of the State for the year just past, may not be a very brilliant work in its conception or results, but it is certainly an important matter to take note of these things once a year. The facts I shall present are in the line of the duties devolved upon the State Bureau of Statistics. But such a broad topic can not be treated in the time allotted, in other than as a brief resume for the year.

Thomas Jefferson said that the most important work of his life was that of securing the abolition of the laws prevailing in Virginia in regard to primogeniture and entail in the landed system. The fundamental elements of our prosperity, industrial and social, have their foundation in our landed and electoral systems. But for this fact I should have little to present other than that which prevails where the "insolent prerogative" of primogeniture still obtains—unrest, ignorance, civil revolution.

AGRICULTURE.

The wheat yield was equal to that of any previous year. The area was 3,063,348 acres, and production 46,928,643 bushels. The cultivation and growth of wheat have developed more rapidly perhaps than of any other staple crop, and have more than kept pace with population. It is interesting to note this fact. In 1850 the product per capita was 6.30 bushels; in 1860 it was 12.50 bushels; in 1870 it

was 16.51 bushels, and in 1880 had increased to 23.75 bushels per capita. Experience has shown that our soil is well adapted to the growth of this cereal, and that the yield per acre will yet be greatly increased.

The area grown in corn this year was 3,312,683 acres, and production 115,699,797 bushels. The increased yield of this crop, though not so marked as that of wheat, has been steady. In 1850 the bushels grown per capita were 52.58; in 1860 it was 53.01; in 1870, which was exceptionally unfavorable for the corn plant, it was but 30.41; but in 1880 the bushels grown per capita were 58.39. The wheat production of this year closely approximates one-tenth that of the United States, and the same is true of corn.

The area of oats was 684,822 acres, from which was produced 19,615,516 bushels, which is the largest production, both in the aggregate and per area, ever grown in the State. The crop of 1880 was the greatest that had previously been grown. The acreage that year was 686,901, and production 15,405,822. The area of 1880 was a little greater, and the bushels produced less.

The acreage in hay was 984,982, and the tons produced 1,599,994. Last year 1,303,217 tons were harvested from 988,560 acres. The hay crop is also the largest heretofore grown in the State.

The Irish potato crop of this year is also the largest yet reported. That of 1880, with an acreage of 77,936, was 4,148,034 bushels, being the best reported previous to this year. The area for this year was 72,934 acres, and production 7,264,830 bushels.

The tile drainage of farm lands is rapidly increasing in all sections of the State having clay subsoils. Reports on tile drainage were received from all but two counties, which show that there are 9,824,297 rods of tile drain, or 30,701 miles.

There were 1,781,571 acres of grazing lands, an increase of 203,749 acres over that reported last year. The dairy industry shows a marked increase. There were 121,080,878 gallons of milk reported, 26,937,124 pounds of butter, and 833,110 pounds of cheese.

The acres of timber land are reported at 4,585,012. The natural forests of the State are rapidly disappearing, but in the prairie sections there is a growing tendency to tree planting. The best timber in the State is found in the northeastern and southwestern sections.

The excessive cold winter of 1880-1 destroyed 25 to 30 per cent. of the apple and peach trees. The number of bearing apple trees reported is 5,927,418, and of peach trees 1,740,577. In the two years ending with April, 1882, there were 1,127,592 apple, and 525,355 peach trees planted.

The decrease of live stock was marked. This is due to the severe drouth which prevailed in 1881. The short grain and forage crops of that year influenced the sale of a large per cent. of surplus live stock, and hence the decrease in the number reported this year, as shown in the following summary:

	No. in 1882.	Decrease from last year.
Horses	493,881	42,370
Cattle	1,110,623	144,032
Marketable fat hogs	1,655,379	120,605
Sheep	1,092,701	53,855

The home value of the principal agricultural productions of this year, based upon the current markets of the autumn, will not fall below \$225,000,000. How much of this is surplus, and finds a market outside of the State, there are no data at hand by which to determine.

MANUFACTURING INDUSTRIES.

The number of manufacturing establishments, large and small, are 12,088. It was hard to obtain uniformity in the reports in regard to capital invested. The different methods of reporting this item grew out of the variety of interpretations of the instructions in regard to the real estate belonging to the several establishments. The capital invested, as reported, is \$50,169,061, but it is believed that if the real estate belonging to the establishments had been properly reported, the sum would have very much exceeded this amount.

The value of the raw material consumed was \$94,296,477, and the manufactured product, \$167,067,443. The average number of persons employed for the year was 72,971, including male and female, and the amount of wages paid was \$28,944,804, an average of \$396.66 per year to each employe, all ages included.

The growth of manufacturing in the State has been very marked. In 1850, the capital invested was but \$7,750,402; raw material used, \$10,369,700; products, \$18,725,423; persons employed, 14,440; wages paid, \$3,728,814, and the number of establishments 4,392. In 1860, the capital had increased to \$18,451,121, and products to \$42,803,469. The value of the products of the factories in 1870, amounted to \$108,617,278. The total home value of the principal agricultural, manufacturing and mine products was, in round numbers, not less than \$400,000,000.

ECONOMIC MATTERS.

In public expenditures sixty counties show an increase, and in thirty the expenditures were less than in 1881.

Thirty-one counties show a decrease in real estate mortgage indebtedness as compared with 1881. In the same number of counties, the amount expressed in deeds, as consideration for the sale of real estate, was over \$9,000,000.

There are 8,649 more real estate owners than in 1881. It is a most agreeable fact that the large estates are being subdivided from year to year, and that the number of land owners is increasing rather than diminishing. It was the belief of many that capitalists were steadily acquiring the lands of the State, but the official reports show for the past four years that this is not the case.

The Clerks and Auditors of the several counties were requested to make itemized reports of the amount of work required to be done in their respective offices. Reports were received from Clerks of forty, and Auditors of fifty-six counties. These, together with the population of each county, will afford some basis for the adjustment of fees and salaries. Mere population is insufficient data for this purpose, for it is found that the amount of court business is great in many counties of comparatively small population.

Thirty-one counties show 967.77 miles of free gravel road constructed under the provisions of the statute of 1875. Of this number 198.5 miles were constructed in 1882.

SOCIAL STATUS.

The following statistics in regard to churches have been collected. The number of church organizations is 4,921; number of church edifices, 4,462; total membership, 444,459; value of church edifices, lots and other property, \$10,825,555; ministers' salaries for the year, \$1,246,913; other church expenses for the year, \$293,965; missionary and other benevolent collections, \$187,227; number of Sunday schools, 24,003; number attending Sunday schools, 257,873; average attendance on public worship, 428,812.

The number of volumes of books in private and public libraries is 1,174,840, and the number of pianos, organs and sewing machines, 68,885.

THE MINERALS.

The tabulated classifications show a fair degree of development of the mineral resources of the State. The cubic feet of sandstone for the year were 961,783, and of limestone, 3,034,758. The tons of coal mined, 1,418,520.

RAILWAYS.

During the year ending June 30, 1882, five hundred and sixty miles of railway have been constructed and put in operation. This is the most extensive railway construction of any like period in the history of the State.

The reports to the Bureau of Statistics show the date of opening each line, the entire length of each, and miles operated within the State; the highest and lowest rate of passenger fares per mile, and average on each road. Also, the highest, lowest and average tariffs on freights, and the daily wages of all classes of railway employees. These reports also embrace a classification and tonnage of freight moved, amount of each kind for the year; also, the number of through and way passengers, the amount of way and through freight moved east, west, north and south, separately, by each road. A general financial statement is shown for each road, embracing capital stock, debt, permanent investment, earnings from transportation—passengers and freight—express and mails, and from all other sources; also net income and dividends. A very complete analysis is also given of the expenses of the several roads, including salaries of officers, clerks, agents and employees, repairs of roads and rolling stock, fuel and insurance, mileage of passenger and freight trains, loss and damage to property along the lines, personal injuries, cost of fencing, and total operating expenses. The aid voted to the new roads by counties and townships, for the year, is \$208,975, and stock taken in new roads by the several counties, \$375,903; these sums together being in excess of that of last year by \$183,467.

EDUCATIONAL AFFAIRS.

The permanent common school fund has been increased during the year, \$70,747.79. This entire fund now amounts to \$9,204,353.98, and is larger than that of any other State. The several counties hold and loan on mortgaged real estate, equal to twice the value thereof, \$5,204,252.60 of the permanent school fund. During the past year \$354,440 were expended in building school houses. The entire value of the common school property of the State is \$12,310,904.

GRASSES.

BY HON. I. D. G. NELSON, OF ALLEN COUNTY.

Delivered before the Annual Agricultural Convention, January, 1883.

The magnitude, importance and commercial value of the grass crop of the country to its inhabitants is so far underestimated that the most fabulous figures could not represent it. Leaving out details, it may be truthfully said that grass furnishes directly and indirectly the life-sustaining food of the world, for without its renovating effects upon the soil it would soon be a barren waste, as neither grain or vegetables could be produced any considerable length of time without it. Clover and grasses, of themselves, enrich the soil and cause it to produce abundantly, while all grain and vegetables impoverish it. There is nothing that we eat or wear that is not dependent upon the successful growth of the grasses; and no country or community is a prosperous one that doesn't produce it abundantly.

But I must pass this branch of the subject, full as it is of thoughtful interest—sufficient to deserve a separate paper—to consider on this occasion “the best, most useful and profitable grasses for different purposes, the quantity of seed sown to the acre to produce the best results, and the proper methods of converting the same into well cured hay.” These queries are sufficiently suggestive for half a dozen more papers. I only propose, however, to simply submit a very few practical thoughts upon the above text, viewed from my own personal standpoint—the result of more than forty years practical experience as a farmer in Allen county, Indiana. And, before commencing, I wish further to remark that what I may say will be necessarily somewhat disconnected, as I have not had the necessary time to properly arrange my rambling thoughts, which at best scatter very badly; yet I will endeavor to make myself understood as having tried to find out a few things that have been very satisfactory—to myself, at least—during my many years of farm experience, having been raised and spent most of my life upon a farm, and even yet, at three score and ten, find little abatement of the zeal and interest of younger days. And still I know my experience and observation is not that of many others, or otherwise they do not practice according to their convictions in some things that I deem very essential. When I once remarked that the plow was the needle gun of the farmer in the summer, I ought to have added that the hay crop was the farmer's fortification in the winter; while, after all, it must be said, to give proper direction to the idea, that the grass crop is the sheet anchor of the whole and the bulwark of defense against starvation all the year around.

Many farmers work with becoming skill and industry to raise a large crop of corn, while they totally neglect to exercise good common sense in the cultivation and security of their grass and hay crop, that with one-fourth of the labor and

expense would be worth, in various ways, much more to them. The truth is, nature has done so much for the growth and perfection of the grasses, and their conversion into hay, that some farmers apparently can see no good reason why they should be required to do anything at all themselves. They fail to see what is patent to the grazing farmer, that his work is one of less toil and more profit than he whose only hopes of profit is from his golden, but hard-earned harvest of grain, that is more frequently dissipated than those who look more to the careful management of their pastures and meadows, and who, although they may not be able to boast of their cattle upon a thousand hills, yet their green fields and smaller flocks betoken thrift, comfort and rural enjoyment worthy of emulation. There is not, in fact, any crop more grateful, or that responds more promptly and profitably to the kind treatment of the husbandman than the grasses, and yet is constantly subjected to neglect, abuse and illtreatment. The thriftless farmer will scarcely let a spear of it stick its head from beneath a snow bank, in the spring, before he will turn his half-starved stock upon it to get a precarious living, greatly to his pecuniary loss, simply because he has failed to deal in a common-sense manner by his grass crop the year before, by growing it in sufficient quantity, cutting, curing and securing his hay in a proper manner. Hence he has nothing to feed them with in the spring, as he ought to have; that he may wait, as all good grazing, successful farmers do, until there is a full bite of grass, and the ground settled before he turns out his stock to pasture. The farmer who thus provides, and has not undertaken to carry over winter too much stock, will find that his cattle will thrive and fatten, and go into quarters the following winter kicking up their heels for joy, conscious that their owner has provided equally well for them with plenty of well-cured hay, the sweet smelling odor of which they have scented afar off.

Now, I am not going to discuss the management of the hay question yet, but I don't want to forget it, and don't intend to, for I have much to say on that branch of my subject. Some may think it is a mania with me, and I don't care if they do if I can attract more special attention to it. In view of the quantity of poor and worthless hay that is brought to market and weighed on the scales I pass every day, when I see a farmer drive up with a load of well-cured, bright, tea-scented hay, I feel like stopping to shake hands with him and inquire after his wife and children, for I can't help but think what a happy family it must be to have such an intelligent, God-fearing head to it. But I am compelled to say, right here, that not one load out of many that comes to market creates any such sensation as that with me, for much of it ranges all the way along down, and very rapidly, too, from seedless timothy heads to (cut in the moon, probably,) I can't describe where.

THE KIND OF SEED AND HOW MUCH SHOULD BE SOWN TO THE ACRE,

Or rather, perhaps, how little can the average farmer get along with, for if there is any one thing on this round earth that a thriftless farmer is more stingy about than another (except paying his church contribution), it is the quantity of grass seed he can cheat his land out of, and at the same time there is nothing that he expects more from. If I was not afraid of offending some person, I would like to say that a farmer who would sow, in this enlightened age of agriculture, two quarts each of

timothy and clover to the acre, would be avaricious enough to cut three tons of hay to the acre if he could get it; but he wouldn't get it, and he ought not, either. About as mean a thing as I used to do to my land, some thirty or forty years ago, was to sow three quarts each of clover and timothy, expecting the Almighty to let me gather two tons or more; but he wouldn't do it. But when the prophet came and my eyes were opened, and I sowed six quarts each, or half a bushel of timothy, I called my friends and neighbors together to behold the crop of hay and rejoice with me.

And now, while on this subject, let me fortify a little by quoting the observations of an intelligent correspondent and practical farmer of the "Albany, New York, Cultivator," who had visited Mr. Champion's famous dairy farm a few years ago, and where they now raise such enormous crops of grass and wheat. I don't indorse Mr. C.'s exorbitant quantities of seed for our western and newer soil, but that we sow entirely too small a quantity in a vast majority of cases, is undoubtedly true.

THICK SOWING OF GRASS SEED AND CLOVER—A CASE IN POINT.

It is recommended usually to sow from half a bushel to three pecks of seed to the acre—this by the best farmers. Formerly half that amount was "seed thrown away"—thrown away to a good purpose, but it was not so considered. "Heavy" seeding is now recommended. But what is heavy seeding? It is, as we have said, half a bushel to three pecks. A bushel—who ever sows a bushel? The case is hardly on record. Yet, what will be said when *two bushels* are mentioned? We know such an instance, not for a single field, or an acre, nor for a year, but as a practice, and on a large scale.

Joel Champion, of Starkville, Herkimer Co., N. Y., has practiced this for many years—say eight to ten; eight, I believe, is the number he told me. This is putting it on thick, it will be said, and so it is.

Mr. Champion "throws away seed," it is said, and said by every one; and yet every one is in high praise of Mr. C.'s pastures and meadows. "Such grass," so "stout," and so "thick," is in the mouth of all. In all my seeing, I have never seen clover so thick, so close, as a lot the present season, sown the past year, two bushels of seed to the acre. In the fall it was the densest and finest field within reach of the eye.

Here was fifteen dollars to the acre thrown away, in part, it was said; and there were ten or twelve acres—one hundred dollars lost in seed. And this is being practiced almost yearly, or as often as occasion may require. Mr. C. is a dairyman, and well to do, so that he "can afford it." He has practiced this thing, not that he wishes to "throw away his seed"—he is not that kind of a man—but rather to harbor the pennies, the way he got an accumulation of them.

This lot of clover, so thick that it could not well lodge, but leaned—leaned from bottom to top, a thick mass, yet not rotten, not hurt—this mass was cut at the earliest of cutting. It was harvested, and some of the hay was fed to the stock in the field on account of the shortness of pasture, and eaten greedily. It was cured—cured in the cock—taken in the second and the third day.

Mr. C. has this advantage: If a drouth sets in at the time of seeding, or after, there will still be a "catch,"—there at least always has been as far as we have observed. Mr. C. never fails of a good stand of grass. He has clover each year, and clover and timothy—and stout at that, shading the ground and protecting it against the sun.

In writing this article, the writer does not wish to be understood as advocating exactly two bushels of seed to the acre. He does, however, advocate—and he thanks no man to say to the contrary—that we are sowing our seed *much* too thin, even those that sow "heavy" and "spare not." We are afraid; we are handling precious stuff, and we *spare* it, we "make it do." We clip the profit; we *spare* that. Who of all our friends of the *CULTIVATOR* ever *knew* of a man who sowed too thick? What is his name; and how much did he sow; wherein was the loss—the particular loss of that man in that case of sowing? Did the seed fail to come? Perhaps (and a loss.) Did it fail when it came, to show thick, and to continue and grow thick? This we think will never be said of clover which gets its strength from the atmosphere.

On the other hand, how much do we hear of failure from too thin sowing? This is the clamor, the yearly complaint, only less loud when the year proves favorable. Then there is fault to the true eye. But even the practiced have yet to learn. Have they tried two bushels? Not they. Have they tried a quarter less? Not that. Even a bushel, a whole bushel of grass and clover seed has been too much. Has any one tried *that*? No. We try only by small degrees; we learn hard; we are careful when the dear stuff is handled. Then let us try—try a little, an acre, half an acre. "Trial is the thing that advances the wheel."

TIME AND METHOD OF SOWING CLOVER AND GRASS SEED.

It is about conceded by all good farmers, that timothy seed should be sown early in the fall. My plan of late years, and the only one that proved entirely successful, is to prepare the ground as for wheat, harrowing and pulverizing it thoroughly, and make it as level as possible (I am now speaking of laying it down for meadow), rolling the ground thoroughly, and sowing as soon as the ground is moist and in nice condition, at any time after about the last half of August. Divide the quantity of seed and sow behind the roller both ways. Before I used a roller brushed it in lightly, which did very well. If the weather remained quite dry I passed over the roller again. A good dashing rain, however, rendered it unnecessary. Sowing both ways insures a certain distribution of seed over all the ground, and avoids naked spots,—a very important point gained. As a result of that kind of management I always expected, and generally realized a good crop of fine timothy hay the next season, worth more than a crop of wheat, besides having it better seeded by far than was possible when sown with wheat, as is generally the case. My land was all thoroughly underdrained, and consequently did not suffer much from dry or wet seasons. Quantity of seed of late years, and on old ground, from half a bushel to three pecks, depending upon the weather and other conditions.

Orchard grass I sowed three bushels, precisely in the same manner, except that I rolled it in both ways. Clover I generally sowed half bushel on wheat in the

spring; never tried it separately. It usually did well enough that way; also sowing a bushel or two of plaster early in May. I generally divided the seed into three parts, and sowed the first on snow, in March, if possible; following with the others as fast as the conditions of the weather and ground were favorable. Used a seed sower, and was careful to have the seed as evenly distributed as possible, by sowing crosswise of the first sowing.

SELECTION OF GRASS AND CLOVER SEED.

The failure to obtain a good stand of grass from seed is, for the most part, attributable to the following causes, namely: First of all, and the most dangerous, and, I may add, the most common, is the use of old and poor seed. Second, the small quantity of seed used—the time of sowing the seed, added to the unfavorableness of the season at the time of sowing, causing the seed to fail to germinate, or unseasonable and unexpected frosts, or continued dry weather, causing a large portion of the young plants to perish for want of the necessary moisture to furnish nourishment. The first of these is quite too common and ought, by all means, to be avoided. A sample of such as is intended to be sown should be tested by placing between three or more thicknesses of cloth or raw cotton batting a certain number of seeds, keeping them constantly moist, in a suitably warm place. Shortly, signs of swelling, and the sprouting of the good seed will be apparent. If the seed is new, and proper attention has been given to the matter, all the seed will start about the same time. If only a portion, or but few sprout, you may rely upon it the seed is old, or new and old mixed, and should by no means be used; and even if the seed has been purchased, procure a new supply at once or your catch will be a failure, for even the seeds that do start will probably perish for want of the necessary vitality to successful growth. Blue grass is especially liable to this fault. The seed is very small, and the vital power of reproduction is limited to a year or two, and the demand not being so regular, it frequently leaves large quantities for seedsmen to carry over from year to year, and they don't always throw it away. The same danger exists in purchasing orchard grass, and should, therefore, be carefully looked after. It must be recollected that when tests are made there must be no foolishness about it. The cloths or cotton must never be allowed to get dry. A common sponge, sprinkled with seed, and kept in a vessel with sufficient water to keep the seed moist is recommended, but I have never tried it; the other methods I frequently have, and received great benefit from the experiments. I will say more about varieties of grasses further on, and will, while the spirit moves, speak of the

TIME TO CUT TIMOTHY GRASS FOR HAY, AND HOW IT IS DONE.

Timothy unquestionably makes much the best hay for all classes of stock when well cured, which is more easily accomplished than any other grass, but which is not always done by any means; and yet is as worthless as need be when cut at an unseasonable time, or handled in an unintelligent manner. My rule for cutting timothy is, when it is in its very best estate, if possible, and that is when the major part of the field is in bloom. Some of the seeds then were in the milk, and most of

them, perhaps before I was through, for I never cut my grass wet or dry, because I was ready, as some do. But my rule is to begin the first fair day after I think the gluten, starch and sugar are most abundant in the stalk and leaves, and hurry on the work as fast as possible during the dry weather and while there is plenty of hot sunshine. I never cut grass for hay when it is wet from much dew or even a very little rain. Only a careful observation of the weather is needed, generally, to secure the crop in good condition. During the summer season two or three days of cloudy or rainy weather is usually followed by about the same number of days of good, or fairly good, hay-curing weather, alternating in that manner through the season, except in seasons of severe drought or excessive rains. I never pay any attention to the signs in the moon or the weather prophets. I once bought a barometer, but it was too slow and uncertain in coming to conclusions to suit me. They are poor property for the average farmer, and scarcely as reliable as the rheumatic is. All things being ready and the weather favorable, I start the mower as soon as the dew is off in the morning and push it for all that is in it for five or six hours, if the weather continues favorable, or until the rake starts, which must be in time to take up all that is cut, with men following the windrows with forks, cocking up in good shape as fast as raked, leaving no uncocked hay at sundown in the meadow.

With the view of saving time and money, as was supposed, I have seen grass cut between showers, and when the grass and ground were soaking wet. No farmer does that, as a rule, whose stock is sleek and fat in the spring, or who does not sell more hides to the tanner than he does cattle to the butcher, unless he relies chiefly on his corn crib to see him through. Good clean, bright timothy hay, cut and cured at the proper time, has a delicious aroma that is as grateful to the human nostrils as to the taste of the brute creation; whereas, if cut when wet, and rained upon when partly cured, and then partially dry and rained upon again, which is too commonly the case, requiring several days to fit it for the barn or stack, it is musty, tasteless and without substance or value. The only way such trash can be made useful is as bedding for stock, and thence into the manure pile, for which it is worth somewhat more than straw. Such deceptive stuff as this, which by courtesy is called hay, is bought and sold as such in the market. It is the only product of the farm but what can be gauged by the buyer somewhat according to its relative merits—except, perhaps, rotten eggs. The imposition is not so great on the purchaser, for he ought to know better, as it is upon the poor animals that are forced to eat it. Somehow or other people will not understand, or give the subject a thought, in regard to the process or chemical change that takes place when the attempt is made to convert the well matured green grass by cutting it and converting it into what is termed hay, preserving at the same time in tact all the richness it contained when in its green state; so that when required for use, it having undergone the necessary chemical change, it becomes as fragrant as the choicest tea, and is eagerly sought after by the stock at all times and all seasons of the year. Even when grass is most abundant, stock with a well filled stomach will eat it with an astonishing relish. But I need not say they will not touch such as has lost its fragrance and its richness.

THE CURING OF CLOVER

Is more difficult than timothy, and is more easily injured by rain or heavy dew when in process of curing; and yet, I never had very much trouble, or suffered much loss. It is a very profitable crop to the farmer, whether considered as a green or cured crop. As a fertilizer, it has no competitor. But as it is clover hay that we wish to consider now, specially, it is only necessary to say this, that unlike timothy, it should be housed after it is cut, without being subject to any rain-fall. It is very impatient of wet weather, when in process of curing. Even after it is put in cock and ready for the barn, a very little rain does it harm, and a soaking rain ruins it, unless protected by coverings made of some kind of cheap material, that is much in use in certain localities. Whereas, well-cured timothy hay, if carefully cocked up in dry weather will endure rain for some days, sometimes without serious injury. The experiment, however, is not to be recommended if it can be avoided. In cutting and curing clover I have always observed much the same rules as with timothy. Dry, hot weather will insure success. If very heavy and green, it may need turning out of cock for airing if the weather continues favorable a day or two, but don't let it get wet if possible. Haul it in the barn rather, green with all the juices of the stalks and leaves in it, than have it get wet, but don't stack it unless well covered with straw. A convenient straw stack in the barn-yard can be utilized to great advantage when mowing away clover rather green, by placing alternate layers of straw and clover. But I had experience some years ago that led me to think that the danger of losing clover hay from sweating, heating and moulding in the mow with all the juices, but no water in it, is a delusion. I had a small field of about eight acres of very heavy clover that perplexed me to find suitable weather during a wet season to cut, until it began to be almost too ripe, as I thought, according to my rule to make first class hay, more than half of the heads having turned brown. At last a fair day or two came, and on the second morning appearing favorable, and being in a desperate mood to do something, I ordered the mower out and all hands to rake and haul in the barn as fast as it fell before the machine, and see what would come of it. We mowed it away in a small bay that I had reserved for it in a sheep barn, as fast as it came from the sickle, and when night came the job was finished. During a thunder shower about a week afterwards, one of the men reported the barn on fire, the smoke issuing from every crevice and through the roof. Supposing the barn was struck by lightning, we all ran down to see what could be done to save some tools, etc., stored in it. We soon discovered the seat of the trouble to be in the clover mow. We opened all the doors, and left the consuming fire to put itself out as best it could, deciding that the clover hay was done for; the only consolation being that it hadn't cost much to cure it. But winter finally came as usual, with its necessities for feed, and upon the investigation of the burnt clover, to see whether any of it could be utilized, it was found that after removing from twelve to twenty inches from the top, which was black and mouldy, the balance was as fine clover hay as could be desired, the leaves and heads being preserved in good color and condition, and was well relished by the sheep, which went through the winter in fine condition without a particle of grain. As it was hurriedly put in the mow with a horse hay fork it

settled, of course, very uneven, and consequently more was wasted than would have been the case had it been put in by hand and well trod down level according to the old and best, but not cheapest method. From this and later experience I argue that clover, timothy and the other grasses, with all their juices retained are injured more from delays after being cut than from being housed too soon. Indeed, I have never witnessed any bad effects from hay put away quite green during dry weather, but I have, as every other farmer has, no doubt, from its being wet or from being too long exposed to the weather. The curing process will go on if the pure juices of the plant are not washed out, and in proportion as they are retained when secured under shelter may its value as hay be calculated. Water, in however small quantity, after the chemical change, or curing process, has fairly commenced, will arrest its progress to a certain extent, which by careful manipulation in succeeding good weather may be dried out and cured, but which, on the contrary, heavy rains usually cause to sour and render measurably, if not entirely worthless.

GRASS FOR PASTURE AND PASTURE LAND.

True pasture land should be used as such, and for nothing else. The best is started as a woods pasture, after the undergrowth is cut and burned, immediately sowing orchard grass and blue grass as early in the spring as you please—on the snow if you can. Of course the faster the remaining timber can be removed the better. Our soil and climate is so well adapted to blue grass that it follows up civilization, and by the time the timber is all removed the ground is well covered with grass for the future pasture, that needs no further attention, and which will never die out. No plow should ever be allowed to turn a furrow in the field, as it has been demonstrated over and over again that the longer pasture ground is used as such undisturbed, the more stock it will carry through each succeeding season. My own experience of twenty years with a sixteen-acre field demonstrated this theory to my mind beyond dispute. Old ground, natural to blue grass and white clover, as most of our land is, desired for pasture, may be sown heavily with clover and orchard grass, a small quantity of blue grass, but no timothy, which, although the best of all for hay, is valueless for pasture as compared with those mentioned. The clover will disappear as soon as the other grasses get well established, giving place to the blue grass and white clover, the orchard grass holding its own, and always giving the first grateful bite to the stock in the spring and the last to furnish feed in the fall.

SALTING HAY

Is a bad, if not a dangerous practice, first introduced, no doubt, by shiftless farmers. I have recently seen an article in an agricultural paper, where half a bushel of salt to a two-horse wagon load of hay was recommended when the hay was not in good condition when mowing away, and from a gallon to a peck in all cases. I don't approve of salting good hay at all, by any means, and have never done so, at least not for the last thirty years, or since I learned better. Stock will eat all the good, bright, well cured hay they need for health and thrift, and even get reasonably fat upon it, without the use of artificial means to stimulate or create an appe-

tite, while they will virtually starve on poor hay well salted. There is little or no difference in the value of hay that was made from grass cut at the proper time and injured by rain, or cut when dead-ripe, as we call it, and secured in good order. If left uncut until the seed ripens, the stalk then is dry, hard and unfit for feed, being without leaves, and the seed rattled out so as to present nothing but the straw (as timothy seed growers call it), while the plant itself has exhausted its vitality in maturing the seed. It is false economy to compel stock to eat the dry, tasteless stalks or weather-beaten, rotten, mouldy trash that has scarcely any life-sustaining substance in it, by being enticed to do so by the grateful taste of the salt that it contains. While the farmer may fool the poor dumb creatures in that way, he cheats himself more, as his lousy, sorry looking stock in the spring will testify, provided it survives that long. I always preferred giving my stock an opportunity to take their salt as they wished it. For that purpose I usually mixed about a peck of salt to a bushel of wood ashes, keeping it in sufficient quantities and places of easy access at all times. They will then consume merely what nature craves, and therefore only what is essential to their health. It is true, hungry or half starved stock will eat a good deal of poor hay if heavily salted, which as a consequence will create an acute thirst, which will cause them to drink a great deal more ice water than will do them good, but, on the contrary, absolute harm; as common sense will suggest by seeing the poor creatures shivering and hunting for more comfortable quarters, when, if properly treated, would have been snorting and chasing each other for amusement. When I feed good well cured hay (which I always aim to do,) I never feed grain except to prize stock, beef cattle and sheep, or to those needing special care; and I was never ashamed of them in the spring, and they never acted as if they were ashamed of their owner. I always tried to keep on good terms with my stock by giving them plenty of the best the farm would afford.

SOMETHING MORE ABOUT CLOVER AND OTHER GRASSES.

A seemingly contradictory theory at first thought may present itself when it is argued that the larger the crop of clover grown, even if removed wholly from the ground, the larger the succeeding crop of corn, wheat, or other grain. If this is true, and I believe it to be so, my own experience confirming it, it is another evidence of the necessity of sowing clover seed with a most liberal hand, so that every inch of ground is occupied. I have crossed over clover fields, as others doubtless have, that were considered a pretty good catch or stand, where I could place my foot upon the naked ground at nearly every step. I have done it on my own ground and none the less discreditable for all that. In unfavorable seasons of very late spring frosts, and continued droughts, a failure is inevitable. But I never bothered with a half seeded field—I could not afford it. The vacant places can not be successfully filled out no matter how much seed is sown. Had the necessary quantity been sown in the first place it is possible a fair stand might have been obtained—and it is more than probable it would do it where the failure is only partial. Nitrogen seems to be the grand renovating element produced necessary to the growth of crops, and clover is its great producer, both from the atmosphere and the subsoil. During the growth of the crop a large amount of

nitrogenous matter accumulates in the soil, which is attributed to the quantity of decaying leaves and roots left on the ground and in the soil. A heavy crop of clover on the ground shades and shelters the surface soil so completely from the sun that it aids the accumulation of ammonia or nitrogen near the surface and consequently greatly enriches it. That shade is an enriching element is demonstrated by the simple fact that covering the ground with straw or other foreign substance for a single season, or even with common boards or plank left loosely on the ground, makes the ground surprisingly more productive. Even a second crop of clover cut for seed, it is claimed, upon high authority, still more enriches the ground, owing to the additional amount of ammonia produced by the leaves left upon the ground—and that the succeeding crop of grain will be better than if the second growth had been fed off with stock. I have made no observations in that direction, but the theory is well sustained.

No such good results can be realized from the cutting of the aftergrowth or rouan on the timothy meadow, but must be left on the ground as the only means of enriching it, so as to secure a good succeeding crop of hay, except top dressing is resorted to. Timothy is an exhaustive crop, the roots not penetrating deep enough to obtain nourishment from the subsoil, nor its leaves the capacity to obtain it from the atmosphere. Feeding it off with stock lays the crown of the plants bare which, being of a bulbous nature, are easily injured from exposure. When, however, the aftergrowth is very abundant, timothy meadows may be pastured sparingly, in the fall, to reduce the heavy growth of rouan that sometimes accumulates so as to interfere with the mower; but in no case should sheep be allowed upon it, as they are very apt to nip off the crown of the plant, and thus destroy it.

On the other hand, orchard grass is a robust grower, and very tenacious of life. It masses its roots so as to resist the encroachment of other grasses, covering much of the ground with its large pendent leaves that spring out near the base of the plant to shade, nourish and enrich the soil not occupied by the plant itself. This perhaps accounts largely for its ability to endure excessive droughts. It will produce two large crops of good hay, on rich soil, and submit to more abuse than any other forage plant except blue grass, which is of little value in a very dry season, when it plays opossum, giving every evidence of being dead, yet upon the appearance of the first copious rain, comes up as smiling as if nothing had happened.

I have said nothing about red top grass, which still has some friends, for I see it recommended every now and then, but for my part I haven't a single good word for it. It is only adapted to low or wet lands, and even those had better be drained and sown in timothy or orchard grass if for meadow, or orchard and blue grass if pasture. Red top makes poor pasture, and is not enduring for meadows; besides, it takes too much of it for a ton of not very desirable hay, as it is of a tough, flexible nature, and not particularly nutritious. Cattle will not tear down a ten rail fence to get to a stack of it if clover or timothy is within their reach, and they are better judges of good hay, sometimes, than their owners.

Hungarian and millet are good annual grasses, and serve as excellent substitutes for hay in seasons of scarcity, but do not come within the range of this dis-

cussion. Rye in an emergency, for early spring pasture, is useful and desirable, but milch cows must be kept from it, as it imparts a very unpleasant flavor to the milk and butter.

There are an endless number of other perennial and annual grasses and forage plants, some of which are doubtless of some value in certain localities, with a favorable soil and climate, but none of them are considered desirable for cultivation in Indiana, while some of them have proved to be terrible pests, hard to eradicate.

Perhaps I ought to refer, before closing, to an article sold as lawn grass seed, usually put up in packages by seedsmen and sold for more than it is worth. There is no such thing, properly speaking, as lawn grass seed as a species of itself, but is a mixture of grass seeds, most of which, if the preparation is worth anything, is blue grass. But frequently timothy, red top and other coarse-leaved grasses, not suited to a nice lawn, compose the chief part, all of them so old, perhaps, that they refuse to germinate, and the lawn grass seed is denounced as a fraud, which it generally is. The best method of securing a nice lawn, which is the most beautiful thing about the premises, is to cut fresh, strong blue grass sward and sod it. If, however, the grounds are too extensive for this, prepare the ground by manuring it well, trench or plow deep, smooth it nicely and sow fresh blue grass seed, and nothing else, with an unsparing hand early in the fall or very early in the spring; brush or rake it in lightly—water it thoroughly if the season is dry—mow every ten or twelve days to keep down the weeds, and in the fall a beautiful deep green, rich, velvety lawn will be the satisfactory reward of your labor.

SOILS OF INDIANA AND THEIR ADAPTATION.

BY PROFESSOR R. T. BROWN.

Delivered before the Annual Agricultural Convention, January, 1883.

Soils are composed of the finely divided fragments of rocks, broken down and pulverized by natural agencies—mechanical and chemical. Clay is derived from the decay and dissolution of slates, shales and that element of granite known as feldspar. Sand is the fragmentary remains of quartz that enters so largely into the composition of nearly all the primitive rocks. Limestone decomposing supplies lime to most soils, though some of the crystalline rocks yield this mineral quite abundantly. In some limestone districts the soil so abounds in lime as to become quite chalky. The geology of a country generally determines the character of its soil, this being derived from the decay and weathering of the underlying rocks. But studying the soils of Indiana, a knowledge of our geology will be of little service to us. Indeed, it will be more likely to mislead us than to guide us to correct conclusions. Except a small district in the southwest corner of the State,

the underlying rock is covered by a mass of transported material, sometimes reaching a thickness of 200 feet, thus completely protecting it from weathering, or in any way making contributions to modify the soil.

This mass of foreign drift, from which our soil is derived, is composed of almost every conceivable variety of sedimentary rock, with the parent rock yielding clay and sand (alumina and silica) always predominating. This drift is of northern origin, many bowlders being identified as belonging to the metamorphic rocks of the Lake Superior region. This is true, at least, of the upper portion from which our soil is immediately derived. The mass of compact blue clay, which generally constitutes the lower member of the drift, is not so readily nor so certainly referred to any particular origin. But our present business is with the character and nature of the soil derived from this source, rather than with theories of whence it came or how it came here. It is probable that this great drift plain, stretching from the Allegheny mountains on the east to the Missouri river west, and from the great lakes to the 39th degree of north latitude, had originally a uniform character, at least, proximately. Local position and surrounding circumstances began directly to make modifications that ultimately broke up this uniformity, and developed several well-defined classes of soils, all derived from a common origin, though each maintains a well-defined character. We shall proceed to roughly sketch these in order.

I.—THE SUMMIT LANDS.

Constituting the divide, or water-shed, between our streams. This class is divided into swamp lands and flat, clay uplands. On the first of these the water stands most of the year, and when the summer's heat and autumn's drought removes it by evaporation, the dense shade if it be timbered land, and the heavy coat of grass if it be prairie, maintains a constant moisture, so that vegetable matter decays slowly and imperfectly. By this process a heavy coat of peaty loam is soon accumulated on the surface, having only so much mineral matter in it as would have represented the ashes, if the vegetation had been burned. Below this lies the original clay surface, as there has been no wash to carry any part of it away. In wet prairies, this half decayed vegetable matter often accumulates to the depth of several feet. The peaty mass is frequently so little decayed that if the marsh be drained, and the season dry, it will burn if exposed to fire, and slowly reduce three or four feet of dry muck to eight or ten inches of sandy ashes. In the timbered lands, the decomposition is more perfect and the accumulation less. These lands grade from the soft maple and swamp ash marshes, to the black lands of the burr oak flats. Neither the wet prairies nor the timbered swamps are of any value for cultivation without thorough drainage. This, however, can generally be done without serious difficulty, most of such lands presenting fall enough to carry off the water with a good current, either in an open ditch, or in a drain tile.

Where the vegetable accumulation is not very deep these lands, when drained, are well adapted to all the cereal crops and to the meadow grasses. They should be plowed so deep, if possible, as to mix a portion of the sub-soil with the light surface mould. In the deeper accumulations of the wet prairies, after drain-

age, the field should be set in red-top, either for pasture or meadow. After three or four summers' exposure to the action of the air, the muck will be so far decomposed as to produce a corn crop. This process of decay can be hastened by a dressing of fresh slacked lime. These marsh prairies are found in nearly all the northern counties of the State, but especially in Laporte, Porter, Lake, Newton, Jasper and Starke, where the Kankakee river contributes so largely to this quality of soil. Many of these marshes have been reclaimed and are now in cultivation, furnishing remunerative crops annually. The timbered swamp soils are distributed in small parcels throughout the northern and central portions of the State. They are rapidly being reclaimed to profitable tillage by underdrains communicating with large open ditches, where natural streams do not offer a favorable outlet. In a few years these swamps will be distinguished from our best arable soils only by their dark color, their facilities of cultivation and their great productiveness.

The other gradé of summit lands are not swamps, and yet they are naturally saturated with water to the surface in the spring months and in all rainy seasons. They are generally covered with a heavy growth of beech, hickory, oak and elm timber. The soil is cream colored, sometimes nearly white, and appears to be pure clay, but really has from thirty to forty per cent. of very fine sand. This soil is remarkable for being clay almost to its surface, showing little or no vegetable mould, though it is mulched every year with a heavy coat of forest leaves. This land, when stripped of its timber, will produce fair crops of meadow grass, and in favorable seasons will do well in wheat or oats. If the timber is not deadened before clearing, it will be difficult to plow this soil at first, as the beech roots form a net work on, or near the surface. This pale soil lies on a compact yellow clay, frequently striped with blue. The subsoil is nearly impervious to water. This feature, together with the general level surface, accounts for the saturation of the upper soil. Another characteristic feature of this variety of soil, is the accumulation of little brown colored concretions in the clay, from the size of a pea downward. These grate under the plow shear and leave dark stripes on the pale clay in the bottom of the furrow. Our business at this hour is to describe this soil and speak of its adaptation, rather than to attempt to account for so strange a phenomenon as is exhibited in these "beech and hickory flats," these "poor oak woods."

But this soil is susceptible of wonderful improvements. A system of underdrains, properly arranged as to depth, distance apart, etc., will in a few years completely transform this soil. Its saturation will be relieved, the hard subsoil will be mellowed down, the iron locked up in the insoluble concretions will be liberated to give a natural color to the clay, and the annual crop of vegetable matter, taking its usual course of decay will begin, directly, to accumulate a layer of dark colored loam on the surface, and the crops, from year to year, will attest these salutatory changes. But this transformation is a work of time, and the man who drains this soil and expects a full return for his labor the first year, will be disappointed; but five, or ten years will confirm all we have said. The material of this soil is exceedingly fine, and as there has been no washing from its surface it retains its original composition. Rendered loose and porous by drainage, its full power of absorption will be developed, and it will retain all manure, applied to it. Passing from the summit soils we have,

II.—THE UNDULATING, OR ROLLING UPLANDS.

These may be either prairie or timbered land, for in point of composition, the soils differ but little from each other. They consist of a sandy loam, containing from eight to ten per cent. of organic matter in its virgin state, mixed with from fifty to sixty per cent. of fine sand, the residue being clay slightly tinged with oxide of iron. The difference between this and the clay soil just described, appears to have been made by the action of water in running off from the inclined surface carrying into the streams and rivers the finer particles of clay, leaving the coarser sand to predominate. This soil rests on a compact and very retentive subsoil of loamy clay which, as a general rule, holds manure well. Its undulating character gives it a fair drainage so that it is saturated with water only in time of heavy rains, and then but for a few hours. But the observing farmer will not fail to notice that the sluices of water that run from his plowed fields in every heavy rain carry loads of fine soil, rendering the streams turbid and muddy, thus robbing his land of a valuable element of fertility. Surface drainage is expensive on all soils, and especially so on loose, clay loam subsoils. Underdrainage would carry off the freshet as transparent as spring water. In the timbered portion of the State these lands were originally covered with a heavy forest of sugar maple, gray and blue ash, black walnut, pig-nut hickory, tulip poplar and red beech with deep roots. In the prairie section of the State, this class of soils contains a little more vegetable matter and frequently a smaller per cent. of sand. These soils are easily cultivated and not much inclined to bake, and even when broken in clods, from being trodden, or from any other cause, they crumble readily under a roller or clod crusher. They are well adapted to grass culture, whether for pasture or meadow, and especially blue grass forms on them a strong and durable sod. Good corn crops, with deep cultivation, are raised on this class of soils, but its most perfect adaptation is to wheat growing. However, there is no crop adapted to this climate that can not be profitably cultivated on the undulating uplands of Indiana. Where the inclination of the surface is not so great as to endanger washing by heavy rains, they give us a very durable soil; the subsoil being well supplied with the mineral elements of fertility to the depth of six or eight feet. This soil is well adapted to fruit culture and particularly to orchards of apples and pears.

III.—ALLUVIAL SOILS, OR BOTTOM LANDS.

Throughout the State these are quite liberally distributed along all the principal water courses. They divide themselves into two groups by a well-marked distinction. Along all the larger streams we have the true alluvium, elevated but a few feet above high water, if indeed, it does not overflow. This is comparatively a recent deposit of sediment from the wash of the stream. It consists of a sandy loam, resting on a bed of sand or gravel, only a few feet below the surface. Being formed from the surface wash of the country tributary to the stream, it is necessarily rich in organic matter and every form of plant food; and being formed of very fine material, with a natural underdrainage it is a soil easily tilled and very productive. Much of this land is subject to be overflowed in freshets, but as these come in the

early spring usually, the overflow does but little damage, except to fences. The special adaptation of these first bottom soils is to corn culture, though after they have been tamed down by a few years cultivation in corn, they bring good crops of wheat or oats. These are valuable soils, and if the streams could be so straightened as to give them a more rapid current, much of the overflow would be prevented, and the only objection to them as farming lands would be obviated.

Between this belt and the uplands, on the larger streams, there is a "second bottom," or plain of terrace land, lying from twenty to forty feet above the present level of the stream, and ranging from a few rods to two or three miles in width. The surface soil is usually a loose sandy loam resting on a clay subsoil, largely mixed with sand, having occasional pebbles impacted in the clay. Below this, for an indefinite depth, is a bed of gravel composed of water-worn pebbles, generally the remains of transported boulders—the fragments of foreign rocks. This gives a good underdrainage, and makes the terrace land a pleasant soil to cultivate; and withal, it is very productive, being well adapted to all the cereal crops. Occasionally sections of this soil are found where the subsoil is thin, and the gravel near the surface. These are liable to suffer from drought.

In several of the northern counties of the State are small districts of a peculiar soil which do not conform to the description of either of these classes. They are neither prairie nor timbered lands properly. They are commonly known as barrens, or oak openings. Originally this ground was covered with a thick coat of native grass and a few isolated white oak, low in their trunks and wide spreading in their branches, which gave these lands their characteristic name. All new timber or undergrowth was kept down by the annual fires originally; but since these have been prevented, a heavy growth of oak and hickory timber is springing up. The soil appears to be nearly a pure sand, generally tinged with iron oxide. Only a very thin coat of vegetable mould covers the surface, and, on slight inspection, we would adopt the primitive name of "barrens;" but in this judgment we should be disappointed by several fair crops of corn and wheat before signs of exhaustion appears. With careful farming, and frequent rest in clover and turning under of green crops, these lands may be maintained in fertility for many years. This is a loose, pleasant soil to cultivate, and well adapted to the small grains; and even corn, with a little manure, grows luxuriantly. These sand ridges appear to be monuments of the receding shore of Lake Michigan. They are, at least, more recent than the blue clay of the drift formation, for this is generally underlying the sand deposits.

South of a line running west from Madison to Vincennes we have a district of soils that may be called *primitive*, that is, they are chiefly made from the decay of the rocks underlying them, at least in a sufficient proportion to give specific character to them. In Clark and Scott counties these are Devonian limestones and shales, giving by turns a loose calcareous soil or a heavy clay. These are good wheat and grass lands. Floyd county, and the eastern portion of Washington, lie on the knob sandstone, which is regarded as the lowest member of the Carboniferous formation. It is a soft, argillaceous sandstone, and gives its character to the soil of this section. The land is quite hilly, but the soil is more productive than its appearance would indicate. Its adaptation is to fruit growing, especially peaches. West of this we

have the remainder of Washington, Harrison, Orange and Crawford counties, resting on the Sub-Carboniferous limestone. This gives a warm, rich, calcareous soil, though somewhat broken in its surface configuration. The supply of potash and the phosphates in this soil is small. Wood ashes and bone meal will be required to maintain full crops. In the counties west of this the soil is derived from the shales and sandstones of the coal measures, and partakes of the nature of these. It is a good wheat soil and in some localities produces good corn crops. Large districts of excellent bottom soil border the Wabash, White river and Patoka. These yield heavy crops of corn annually, the milder climate adding perceptibly to this result.

RESTRAINING STOCK FROM RUNNING AT LARGE.

BY THOMAS NELSON, OF PARKE COUNTY.

Delivered before the Annual Agricultural Convention, January, 1883.

MR. PRESIDENT—In reluctantly consenting to the request of your Secretary to prepare a paper on the subject of "Stock Running at Large," I feel that I am not fully competent to discuss a question of such importance, in a manner satisfactory to myself or entertaining to the delegate Board of Agriculture. This is a question that at the present time is assuming vast proportions in the rural districts, and with the increasing expenses to be incurred on account of increasing value and scarcity of material for building and maintaining fences along the public highways, it is fast becoming the greatest burden that the farmer has to contend with, and the question presented to every land owner, is it necessary that this especial burden be borne much longer? It must be admitted, at the outset, that the land owners must yield for the public a sufficient amount of their lands, at reasonable distances apart, for highways for the convenience of the public in general. This is all right and proper. It has been so from time immemorial, and will no doubt continue to be so for all time to come. But should the land owner be required to erect and keep up a fence along such highway to restrain all kinds of stock from preying upon his crops that each and every person sees proper to turn out on the public highway, including horses, mules, cattle, hogs, sheep and geese, each one of which will, in their rambles along the highways, seek any vulnerable place along the fences, some of them testing the fence by its altitude, some by its capacity to resist pressure, and others by the compactness in which the material, of whatever kind is used, is placed in the make-up of the fence? Hence the term frequently used, that a fence along a highway to be such in its true meaning, has to be mule-high, bull-strong and pig or goose-tight.

Now, Mr. President, let us, for a few moments, consider whether this great outlay for public good, if, indeed, it is a public benefit, which is questionable, should be continued. I will assume that the average farmer derives no benefit from stock

running at large. Then the query, who does? If any one, it must be the dweller at the crossroads, or the inhabitant of some town or village who is the owner of a horse, cow or hog—and he or she has a perfect right to such ownership—that turn stock loose on the highways. Now, what moral or legal right have such persons to occupy or convert to their use the highways in such a manner? None whatever.

Does not the owner of land along which such highway runs pay taxes on such lands for the support of the government, State and municipal, without any rebate in quantity or value for lands so taken up by highways for the public use? And when or at what time did the non-owners of lands acquire a right to these lands set apart for highways, for the purpose of using them as public pasture grounds?

The right to the free use of such lands embraced in highways is not for one moment sought to be abridged or taken away from the humblest individual in the land, for the purpose of travel along such highway, whenever or wherever he or she may desire to go in the pursuit of business or of pleasure, or in the sacred right of going to or returning from places of public worship. But the time, in my humble opinion, has fully come when the uses of the public highway other than for the purposes of travel enumerated above should cease, as the cost of erecting and keeping up fences along highways of such a character as would prevent the destruction of the crops of farmers, by animals that are frequently found running on highways, amounts to more of a tax annually than is required to keep up our State, county and municipal governments, and even the prospect in the near future of the supply of fencing material, usually made use of in the construction of fences, being almost entirely exhausted is alarming.

There is in Indiana, on the average, a highway along each side of each section of land (640 acres.) The cost of a fence suitable to restrain animals, that at the present time are found at large on the highways, from committing depredations on the crops of farmers would be, at the prevailing price of material, at least two dollars per rod or pole lineal measure.

The circumference of each section is 1,280 poles, making the cost of a fence along the highway around each section \$2,560, as the first cost of a fence that the land owner would have to incur to prevent depredations on his crops from animals running at large on the highways. This, in my opinion, is an expense to the land owner that he should have relief from in some way at an early day.

But, says one, what remedy do you propose for this existing state of affairs?

Does not the present law amply provide a remedy? Can not the Commissioners of the different counties in the State inaugurate a full and ample relief?

To the last interrogatories I answer emphatically, "No."

The powers and duties of Commissioners under existing laws are practically dead letters on this subject.

Now for the remedy. In my humble opinion it is this: Wipe out all existing laws on the subject of stock running at large, and enact in general terms that no live stock of any kind whatever should be allowed to run at large on the highways of the State of Indiana, provided that any civil township in any county in the State might, on petition of two-thirds of the voters of such township being presented to the Board of Commissioners of the county in which such township is

situate, asking that certain animals therein named be allowed to run at large on the highways, the Commissioners of the different counties to have exclusive jurisdiction in the matter as to how long the exemption should hold and be exempt from the provisions of such enactment, ample and full security being provided, to the satisfaction of the Commissioners, that the rights and privileges under such restraining enactment of each and every citizen of each township in the State that had not so petitioned for such exemption should be faithfully and fully guarded.

These, Mr. President, are briefly some of my views in regard to the restraining of stock from running at large on the highways, and as a farmer and small land owner, I think without working any hardship to those differently situated, the land owners of the State are entitled to some relief.

PROFIT OF DURABLE TIMBER.

BY DR. A. FURNAS, OF HENDRICKS COUNTY.

Delivered before the Annual Agricultural Convention, January, 1883.

Alexander wept because he could find no more nations to conquer. But if I should shed a penitent tear to-night, it would be in the mortifying appreciation of the fact of my utter inability to present the points of interest in my subject with that force and clearness which its importance demands.

To confine myself strictly within the limits of my subject, the varieties with which I shall deal will be indeed few in number. This, however, is to be esteemed our good fortune rather than otherwise. For had the number been large, we might have found our task beset with more difficulties and failures in the multiplied forms and systems of management of each separate variety, than is now the case in the few well known kinds with which we have to deal.

I wish to state here in the beginning, that in order to give my remarks more force and weight than my own dictum would carry, I will often be compelled to quote other authorities which I intend to acknowledge at the proper time and place.

When I first heard of growing timber for profit, I thought the idea most absurd. Reared, as I have been, in a new, heavily timbered country, where much of my life has been spent in clearing away the forest, it is worthy of note, that I should live to see the folly of the wholesale destruction of the primeval growth of the country which was practiced in bringing under culture the timbered regions where I have lived in Ohio and Indiana.

But "circumstances alter cases." The tables are turned, and now the question is, how can this damage be remedied, or, what is the nearest approach to a substitute to which we are to look for our timber supply? for the best that we can do

will be but a sorry imitation of the original growth of timber with us in central Indiana, which is rapidly becoming a thing of the past. The uppermost thought in this matter is, is it practical and will it pay? This is a most reasonable question, and one to which we propose to devote a little consideration; but, perhaps, we had as well speak of varieties and their respective cultivation first.

Mulberry.—The common native mulberry is not to be overlooked as a timber of great durability. It is a rapid grower, but as it is naturally of rather low habit, is not so easily grown tall and straight as some other trees are by crowding. However, I have grown it of sufficient size in twenty-five years to square ten or eleven inches for a gate post. The black mulberry of Asia is said to be very long lived, but our kind does not appear to survive so long, often lasting longer after being set as a post than it was in growing, but according to my observation, too large or to old trees are often defective, and do not last so long in posts as those from smaller and mature trees. The mulberry *bar post* is familiar to most of us, but is not so common as a fence post. When General Harrison visited Vincennes, in 1840, he examined a row of mulberry posts that he set there in 1808, and found them comparatively sound.

The chestnut is another valuable tree, especially for rails. It would seem, however, that we are near its extreme northern limit, as it is occasionally killed by frost with us, and, at Fort Wayne, I. D. G. Nelson reports it an entire failure. In Kentucky and the southern part of Indiana it is frequently found of large size and great beauty, and is much prized for its fruit, as well as timber, which splits very nicely, making rails and posts of great durability. With me, both our native and Spanish varieties have been quite hardy, and the latter a very prolific bearer of large and fine flavored nuts.

Osage Orange.—This small tree, though not a native with us, seems quite at home in Indiana. For strength and durability, perhaps it has no superior—its slow growth being its principal fault. As a fence post it is almost equal to iron for durability. An instance is on record of a row of posts being set of oak, but lacking one post, a handspike of the osage was substituted, temporarily, however, just to help finish out the fence; but as often occurs in such cases, was neglected and allowed to remain, and finally, when all the other posts were rotted and gone, the osage spike remained in quite a good state of preservation. An extensive rancher in Southern Kansas informed me that he used it as a fence post on the prairie in the construction of wire fence, stating that it was not only the most durable post with which he was acquainted, but also that it was not liable to burn when fires were devastating the prairie grass, stating further, that on osage posts, with wire, he never so much as went to see after his fence when the prairie fires swept through it.

The same gentleman, above referred to, was somewhat acquainted with the osage in its native Texas, where nothing else is used for wagon timber, a wagon thus made being considered worth two of any other material, and that sun or rain made so little impression on such woodwork that wagons made of osage were seldom housed. As a railroad tie it would be very durable, but when seasoned, is too hard to drive spikes into, and hence, if used for that purpose, would require a spike made specially for it. One of my neighbors set a hedge of osage; it was, however, never trimmed,

and, after growing ten or twelve years, he found that it was not where he wanted it. It was, therefore, cut down and piled where it was wanted, and succeeded quite well as a fence for eight or ten years. I saw the fence myself, and can testify to its complete effectiveness; but it had a very untidy appearance, besides taking up twice as much room as it should. I find for pins, rake teeth and handspikes it has no superior. I will not speak of it as a live fence, that being outside my purpose at this time.

The culture of the common black walnut is, perhaps, entitled to a passing notice here, though it can not be ranked as a durable wood when exposed to the weather, and especially as a post in the ground. But when the lumber, as at present, commands \$100 per 1,000 feet, with the probability of a farther advance and no likelihood of a decline, we will naturally inquire whether it is possible, in the short span of life meted out to us, to grow the walnut with profit. Dr. Warder answers the question thus, "Plant walnuts, if not for yourself, for posterity." The same high authority says no one need think of returns from this tree for lumber purposes inside of thirty-five or forty years, and with this view, to those even in the younger walks of life, the money feature of it is, to say the least, too remote and discouraging to satisfy this busy age of steam, electricity and haste to be rich. That it may attain to a nominal value quite before that time is not to be denied, but this would mostly be for fuel, for except as a round pole in a fence, walnut rails are not a success from very small thrifty trees, for it will not make more than two or four rails to the cut, it springs and warps so intolerably as to be almost useless. As a framing timber, it is strong and very durable, and never, in a dry place, attacked by decay borers and worms. However, it is so prone to crack and split in scoring and hewing, as well as framing, that it is quite unreliable for that purpose.

A serious objection to the propagation of the walnut is that it transplants badly. I am inclined to think this objection not so much in the fault of the tree as the manner in which it is handled. It is one of those plants, while small, that extends its tap root deep in the earth, the part below the collar being larger than the portion above ground. The digger is not sufficiently careful to lift the plant with all its roots, and its means of subsistence being cut off, it must die. It is recommended to plant the nuts with the hull on it, where it is designed to grow. When in good condition, two nuts to the hill, covered as corn, are generally enough, and should both grow, remove one of them. The distance between plants may be very similar to corn, that is four feet, and thin out for stakes and stringers for mule fence, allowing the thrifter trees to develop into larger timber. I wish to impress this very important fact, that is, that erect, straight-bodied trees can not be grown artificially. For instance, the walnut that comes up by itself, in the open field, can not be pruned so as to make a smooth-bodied tree; but crowd it, and it and its fellows will rise to seek the light, and the shade of the lower limbs will eventually destroy them, and thus they become self-pruning. Hence we must necessarily plant much closer than we expect the mature trees to stand. The successful tree grower must approximate the natural method as near as possible.

There is another tree, new to us in Indiana, which I wish to speak of at this time that is somewhat out of the limits of my object—durable timber and that is

the Carolina poplar, or *Populus Angulatus*. I never saw this tree until in February, 1876. I was in New Jersey, and at William Parrey's place, near Cinnaminson. I saw it growing on his ample lawn, and, upon inquiry, was informed that he set it there twenty-five years ago. I was struck with the majestic appearance of the tree, and was told that it was a fine street tree, that it did not sprout or lift up the pavement, and that its leaves did not absorb smoke, but retained their refreshing greenness throughout the entire season in the most smoky parts of Philadelphia. I was also informed that it was propagated by cutting, and at once ordered one thousand. These were set in the fourth month (April) following. Every cutting grew, averaging four or five feet in height the first season, and in a few instances reached seven or eight feet, and at two years old it was ten or twelve feet in height.

One of these trees now standing in my door yard—once transplanted—measured, this week, twenty inches in circumference one foot from the ground, and forty-five feet high? At this time seven years ago it was but a twig, not then separated from the parent tree on which it grew. In appearance it very much resembles the native cottonwood, but is more upright and symmetrical, and I have never yet seen the objectionable cotton that is so disagreeable in the latter tree. Like other soft varieties of wood, it is of but little value as a durable tree when exposed to the weather, but for building purposes in doors, and for fuel, it will answer as a good substitute for better timber, and certainly would beat nothing a great ways on the treeless plains of the West, where it occurs to me it would be eminently fitted for almost immediate use, and until more valuable timber could be grown. For a wind-break, I think it would succeed quicker than any other deciduous tree with which I am acquainted. As a street tree, it succeeds finely in Danville and other places where I have introduced it. Its roots strike deep into the ground and in drought is but little effected, and, as was claimed for it, does not interfere with walks or pavements. I have never known it to send up sprouts as long as the roots are uninterrupted, but after the trees are dug the roots frequently sprout and start a new growth. It is a very difficult tree to dig. In a cutting ten or twelve inches in length, it always starts its roots from the lower end, and as these tend partly downward it requires a large hole to obtain a sufficiency of roots. Fortunately, however, it transplanted easily, and I have never yet seen one die when properly set.

A few years since there was much said of the rapid growth of the European larch and its promise of great durability. I believe the latter claim has been pretty well sustained when the wood is well matured, but its growth has not been satisfactory on my grounds in the few specimens that I have. A neighbor of mine set 1,000 plants, a large portion of which died, and those that did live have made but a sorry growth. In Illinois, however, it seems to succeed better, and I have seen very fine growths of it at Princeton, and Robert Douglass, of Waukegan, speaks highly of it, both for its satisfactory growth and durability. My opinion is that we can do better with other trees on our soil, as it evidently is not at home in Central Indiana.

I now propose to consider the locust, or *Robina* of Linnaeus, which is the common locust of our streets and lawns. This tree is indigenous to North America, extending as far north as Massachusetts. It is not my purpose, however, to go into its

interesting history or classification, or to notice it as an ornamental tree, but rather in consideration of its valuable qualities as fence and gate posts, street paving, pillars and piling, and all other exposed situations for timber.

First, I will notice its propagation and cultivation briefly. As it is quite a sprouter, small plants can frequently be obtained in the vicinity of older trees. These, if not too large, transplant readily, and if cultivated for two or three years will grow very thriftily and soon require no further care. But the most reliable method of propagation is by seed. These must be soaked in warm water for one or two days. Even boiling water may be poured over them at first, not only with impunity but with positive advantage. After the proper soaking they grow readily, but without that treatment they are unreliable. The young plants are as well grown in a seed bed for one or two years, when they may be transplanted in the permanent plantation four feet apart each way, and cultivated as recommended for the aprouts. This close crowding of trees is not only necessary to insure the erect growth, but is also thought to be a protection against the locust borer, or *Clytus Pictus*, as it seems to delight in the warm rays of the sun more than the dense shade of a crowded forest. After the trees are fairly started, say in six or eight years, the process of thinning out may begin. The growth of the trees will dictate how many to remove, but as a general thing an average of between six and seven trees to the rod, or 1,000 to the acre. Those that are removed make excellent stakes and stringers for fence, and many other purposes found quite necessary on the farm.

Bluegrass succeeds partially under an old grove of locust, at any rate the locust seems to favor a better turf than any other tree with which I am acquainted. It is often the case that the pasture under these trees is enough to pay the rent on the ground while the trees are growing. This, however, only occurs where the trees do not fully occupy the ground.

Twenty-one years since I set a small grove of locust, and for the last four years no lot of equal size has yielded half so good returns. For building out-houses and sheds for stock, it is only necessary to plant the posts in the ground. Previous experience has demonstrated that in a building partially protected from the weather they will last almost indefinitely. I have used it for foundation posts, planting the locust deep and firmly in the ground and then spiking other sawed posts on these, and have thus straighter and nicer timber for work in the frame. Of course, this is not recommended for dwellings or anything else of neat finish and architecture, but for sheep and cattle sheds, hog houses and the like, I have found the locust morticed in the ground to answer every purpose.

For gate and fence posts heretofore it has had no equal, and even now it contests the honor with the far famed catalpa. Some instances are on record of the durability of the locust that would seem to challenge our credulity. Dr. Stevenson estimates the average duration of a common sized locust fence post, at thirty to thirty-five years. Robert W. Hodson informed me that he saw locust posts being re-set in Pennsylvania that had been in the ground for thirty years and were not estimated to be more than half worn. In building plank fence the ordinary oak post is not reliable more than eight or ten years, but if we can have a post that will last from thirty to forty years it would seem worth while to nail boards on it.

A year since I built some picket fence with locust posts. Should I live to be the oldest of men, I never expect to see these need replacing, and so far as I am concerned that job is finished for all time. Driving a nail in a well-seasoned locust post is no trifling job; the fact is, it can't be done with long, slender nails. The locust is so solid that when green it is as much as can be done to drive nails in it, and for driving in it seasoned, short, heavy nails will have to be used. This is really an objection to it, and seriously disqualifies it for railroad ties, otherwise it would be admirably fitted for that purpose also. The strength, weight and durability of the locust renders it inestimable for pile driving. Where such timbers are partly exposed, alternately to air and water, as holding up embankments and protecting abutments, etc., the locust is, perhaps, not surpassed by any timber. For Nicholson pavement the locust has been thoroughly tried and found to succeed well.

The blocks are sawed the proper length, and put down without squaring, the interstices being filled with gravel and pitch. For a wooden pavement this has no equal for durability in any other known tree.

Thus, the uses to which the locust can be applied are numerous, and the demand will not be supplied until we have a new order of things, or some cheap and indestructible mineral can be found to take the place of durable wood, which is not now probable.

As to the remunerative feature of locust growing, I will submit a few figures based upon positive facts, the result of my own observation on my place. My plantation averaged seven trees to the rod, and we cut no tree that made less than three posts, the average being nearer four, and many of them made five; but place the average at the minimum of three posts to the tree. This gives us 3,360 posts to the acre, which, at twenty cents per post, amounts to the snug little sum of \$672 per acre. I can buy land that when stocked with trees ready to take care of themselves, or, in other words, that will require no further attention, that will not altogether cost more than fifty dollars per acre, and borrow the money at six per cent. and compound principal and interest for twenty years, and clear \$400 on the investment. Does anyone doubt the demand for fence posts, let him but take a survey of the tumble-down fences all over the State of Indiana, and he will readily see that something will have to be done or we will soon be without fences. I hear some one whisper, "Grow live fence." That, I find, is easily done. It is not much trouble to grow a good osage fence on suitable ground, but it is a terrible sight of trouble to take care of one. I have a mile and a half of osage fence, some of it eighteen years old, and I think I know whereof I testify. Near a mile of this is plashed on the plan of the Dayton Hedge Company, which I have no hesitancy in pronouncing far superior to any other plan of treating live fence that I ever saw, and yet if I can obtain durable posts, I never intend to plant another rod of hedge fence.

Incidental reference has been made to the catalpa. I now propose to examine its claims as a valuable and available timber tree, with an imperfect history of it. The wide area over which the catalpa is found would indicate its usefulness in some way or other, as it is indigenous to the southern part of the United States, extending as far north as the southern portion of Indiana and Illinois. It has been

transplanted successfully as far north as Massachusetts, though it does not grow so freely north as in its native country. It has been grown in Europe and Asia, but seems to succeed best in warm and temperate latitudes, and in my judgment is the coming tree for Kansas and all the treeless region of the United States and territories subject to the extremes of heat and drought. I might be allowed to remark here that I have seen the catalpa at Baxter Springs, Fort Scott, Lawrence and Leavenworth, in Kansas, succeeding even better than it does with us, thus offering a speedy and reliable remedy to their long felt want of durable timber.

The variety recommended for growing as a timber tree is called *speciosa*. This is not known to the older botanists, and Warder, of Ohio, John Teas, of Missouri, and Samuel Foster, of Iowa, claim for it a distinct species. That it is a distinct species from the bignonioides, however, is called in question. Dr. R. T. Brown, of Indianapolis, said in a conversation with me recently, that botanically, he could discover no difference in bloom, seed, pod, leaf, bud, stem, or root, other than the time of inflorescence, the length of seed receptical, and the rapidity of its growth. Lowden gives us three distinct species, but now we enumerate the *C. Syringifolia*, *C. Bignonioides*, *C. Japan Hybrid*, *Kempheri*, and to this list we propose to add another species, the *speciosa*. Not being a botanist, I can not help suspecting that all these so-called species, with no doubt others yet to be discovered, will eventually be grouped as varieties of the same species.

Leaving the botanical status of the catalpa, I will remark here that there seems to be no apparent difference in the durability of the *speciosa* and *bignonioides* when equally exposed to the weather, yet it is admitted by all that the latter is not so hardy as the former. A single specimen of the *bignonioides* on my place, set in the spring of 1852, has never exhibited the slightest symptoms of frost injury; and though it is called the slow growing kind, it now measures one foot from the ground, four feet and eight inches in circumference, and is forty feet in height, and would make, at the least calculation, ten or a dozen fence posts.

Passing from the catalpa in general, I now wish to consider the *speciosa* in particular, and you will pardon me for drawing on E. E. Barney, of Dayton, Ohio, one of the most celebrated passenger car builders in the United States, and who has no possible interest in the dissemination of the catalpa except as a purchaser of the timber for railroad purposes.

THE CATALPA.

FURTHER INFORMATION ABOUT THIS INVALUABLE TREE—ALMOST AS DURABLE AS IRON—HOW TO PROPAGATE IT—TIES THAT WILL DIMINISH REPAIRS \$200 PER MILE.

DAYTON, OHIO, December, 11, 1876.

To the Editor of the Railway Age:

I am much gratified that the notice of the catalpa, in the issue of November 9, has called forth much valuable information on the subject. Allow me to add a few more facts, which I trust may call forth more information as to the invaluable properties of the catalpa. In the spring of 1871, in conversation with Wm. R. Arthur, formerly superintendent of the Illinois Central Railroad, he stated that the catalpa would make a tie for railroads that would last forever; that it was easily cultivated, was of rapid growth, and when planted in groves grew straight and tall as any forest tree; that he had several groves then growing on his farm that had been planted but four years and were twenty feet high; that he had planted them for fenceposts, but had subsequently learned that they would hold a spike as well as oak and would not split. Hence their value for cross-ties.

In answer to my inquiry how he knew the catalpa would last indefinitely, he replied he had asked the same question of the party who gave him the information, and that he replied: "Seeing is believing. Go with me to Cairo, up the Ohio river twenty miles, and back from the river eight miles." They went, and found on a farm belonging to his father a gate post which, he stated, he had assisted his father to put in position forty-six years previously. They dug around it and examined it carefully to the bottom, and found it as sound as the day it was planted—no signs of decay whatever. Subsequently I stated these facts to Judge Upsher, of Indiana, and spoke of their importance to railroads. He said the statement recalled what he had been told by old citizens of Vincennes, Indiana, in relation to the old stockade built by the first French settlers of that place, of logs cut from the catalpa tree that grows native in the forest there. These, when removed from the ground nearly one hundred years after they had been placed there, were perfectly sound, and gave no indication of decay. Subsequently I wrote to C. M. Allen, of Vincennes, for such information as he could give in relation to the catalpa for cross ties and posts. He replied:

"Your inquiries as to the durability of the catalpa tree I can only answer in a general way and for a limited time, having been a resident here only for thirty years. During that period of time I have seen much of it in posts and timbers of buildings coming in contact with the ground, and that my observation is that it is

the most durable of all timber. For railroad cross-ties it is better than either mulberry or cedar. A gentleman has just stepped into my office who informs me that he has it in fence posts of twenty-two years standing, and that they are as sound and firm apparently as the day they were put in. It may be regarded as next to iron for railroad cross-ties, if the wood is firm enough to hold a spike. In fact, it may be regarded as imperishable under or lying on the ground."

I have seen it stated in the papers that the State agricultural societies of Delaware and Michigan had recommended farmers to plant the catalpa for fence posts, as being for durability quite equal to red cedar. I saw in one of the Detroit papers, last of April, 1876, in answer to an inquirer what tree he should plant to mark the Centennial year, an editorial paragraph directing him to plant the catalpa, for its durability.

Its value arises from its great durability, even when exposed in air and damp at the same time. This quality of the wood was pointed out by General Harrison, as long ago as 1825, in an address delivered at Carthage, Hamilton county, Ohio. He became acquainted with the tree at Vincennes, Indiana, where there are some aged trees at this time, and where he was once a resident as Governor of the Northwest Territory. The durability of catalpa wood has been pointed out by planters in more recent times, but the tree has not been much grown. It is to be recommended for fence posts. The seeds are borne in long pods, and are small and delicate affairs. I have found them to germinate in ordinary garden soil, and in the full glare of sunlight. The young plants are so sturdy that I recommend the planting of seeds where the trees are desired, notwithstanding their smallness. Sow in spring, and cover not more than one-fourth of an inch.

Thomas Brown, an old citizen of Dayton, says that twenty-five years ago he planted a large number of catalpa trees on his suburban place; that while planting, several then old citizens commended his selection of catalpa, saying it wast he most durable of trees, and would outlast red cedar.

Last February, William P. Huffman, of this city, had the long, bean-like seed pods hanging from a catalpa shade tree growing on his grounds plucked, and in April planted the seeds contained in them, as apple seeds are planted in rows for a nursery. They all germinated and grew vigorously, many of them three feet in height. Three years ago I cut from a catalpa tree, that had been cut down after growing thirty years as a shade tree, two railroad cross-ties, and placed them in a track over which trains pass every hour, one under a rail joint. The spikes show no signs of loosening. The catalpa does not hold a spike as well as oak, but sufficiently well for all practical purposes. I subjected pieces of catalpa, oak, and ash, one inch square, to a breaking pressure twelve inches between supports. The catalpa broke under a pressure of 703 pounds; ash, 890 pounds; one piece of oak at 577, one at 709, and one at 1,141 pounds. The catalpa deflected three times as much as the oak or ash before breaking.

THE CULTURE OF THE CATALPA—FURTHER FACTS.

JAMES M. BUCKLIN'S TREATMENT.

KNIGHTSVILLE, CLAY CO., IND. Feb. 22, 1876.

To the Editor of the Railway Age:

The subject of adopting a natural mode of culture for the catalpa is to enlarge the dimensions of the tree, to accelerate its growth and maturity, and at the same time to correct its tendency to a low, shrubby growth where isolated, in a great degree the effect of transplanting, which seems to exert a greater influence on the growth of the catalpa than upon many other trees, by permanently impairing its recuperative power to *produce wood*. However this may be, all who wish to insure the rapid and early maturity of a young plantation of forest trees, should bear in mind that after following the precepts of nature in propagating the tree, we must pursue the same means, or mode of culture by which a rapid and uninterrupted growth is preserved and maintained by nature. But to understand this thoroughly we must examine the remains of those primeval forests which once covered the whole country, and observe the exuberant growth of the timber and the condition of the soil, which, untrampled except by the surveyor, the hunter, or by wild animals, is covered with mould as soft and elastic as a sponge, and in a perfect state of adaptation to the assimilation of nutriment by the roots of the tree. Then compare the fresh luxuriance of the timber and the absorbent soil of these dense forests with the state of the woodland pastures around us, whose every tree exhibits evidences of premature decay, and where the soil, impacted by the feet of animals, is almost impervious to moisture, and however rich the soil may be in plant-food the trees are starving to death, because the roots of the trees can not digest their food.

Prof. John Collett, in the report of the Geological Survey of Indiana for 1873, says on page 364:

"Catalpa trees, two and three feet in diameter, are found in Knox county. One twenty-five inches in diameter, had thirty-seven rings of annual growth, indicating an increase in size during that time of over 0.67 of an inch per annum. A catalpa gate-post set in the ground by Col. Decker, in 1780, near the school house on Deshee creek, was cut up for firewood in 1871, and was found in fair condition after doing service for nearly a century. President Harrison, on his visit to Vincennes, in 1840, publicly called attention to the fact that a picket fence, built by him along the river front of his former residence, was in good order after forty years' service. The portions of the posts (catalpa and mulberry) buried in the earth were found as sound as if cut yesterday. Catalpa posts set by General Harrison about the Governor's house in 1808, were taken up, Mr. Pidgeon informs me, a few years ago, and, being sound, were reset in another place."

On pages 416 and 417, the Professor says:

"Mr. W. A. Walters has measured catalpa trees, in the original forest, near Owensville, Gibson county, three and four feet in diameter. Mr. R. E. Starnate has measured catalpa trees, in the White river bottoms, two and a half, three, and even four and a half feet in diameter. This timber is universally credited with wonderful power to resist decay and time. Col. Cockrum has known it in use, without stain of decay, for fifty years; and Capt. Kurtz knows catalpa trees dead, but still standing in the overflowed bottoms of the Wabash, which were killed by the ice in the great January flood of 1828. The tree is of rapid growth, offensive in odor and taste, is not liable to be destroyed by insects or animals, flourishes best in bottom lands, but will grow in any soil or position."

If the first year's growth freezes down, as it may north of 40° latitude, it will spring from the root and grow vigorously the next year, and grow readily up to 42° of latitude.

J. M. Bucklin, civil engineer, of Knightstown, Indiana, writes that in 1834 he went to Carmi, Ill., with Governor Davidson and others, to plan a bridge across the Little Wabash. While there they saw many wagon loads of catalpa timber hauled by farmers more than twenty miles from the mouth of White river, and found, on inquiry, that it was deemed invaluable for fence and sign posts, on account of its extraordinary durability. Mr. Bucklin suggested the use of this timber, and the construction of a cheap, open-trestle bridge instead of the more expensive covered one they had intended to erect. On visiting Vincennes for further information, their preconceived opinion of the remarkable durability of the catalpa was fully confirmed, and the bridge company adopted his recommendation. At that time the durability of the catalpa was notorious and unquestioned. Dr. John A. Warder, president of the Horticultural Society of Ohio, writes from North Bend, Ohio:

"So well satisfied am I of the great durability of the catalpa, the fine polish it will take, its great beauty as a cabinet wood, and its value for railroad purposes, that I wish myself a young man that I might plant a quarter section with catalpas, four feet each way. I have several groves of four years' growth from Dayton seed, planted on the hillside, seventeen feet high and twelve and a half inches in circumference one foot from the ground."

The report of the department of Horticulture in the Illinois University, says: "The catalpa planted two feet by four feet has made the greatest growth, an average of four feet per year, and was very little injured by the severe winter of 1872-73, when the thermometer marked 30° below zero. It is the only kind of which none have died. It is also one of the cheapest of the various kinds of trees planted, and is noted for the durability of its wood."

There is in our office a catalpa, fence post taken from a post-and-rail fence in Indiana, that J. S. Miller, Sup't, Richmond, Ind., vouches for as having been placed two feet in the ground *seventy-five years ago*, where it has remained till quite recently, when it was taken up and sent to me by him as a sample of the durability of catalpa. It is worn away below the surface of the ground nearly one-fourth of its diameter. It is perfectly sound in every part. Mr. Miller also sent me some

catalpa logs, from which I have had cut a dozen railroad ties and placed in a track over which trains pass hourly. Thus far the spikes seem to hold well, and the ties show no signs of giving under the rail.

Abundance of other testimony of a similar character might be adduced going to prove the durability and consequent utility of the catalpa, and its adaptability for fence posts, railroad ties, telegraph poles, pillars, or supports under barns and other out-buildings. Stakes for nursery, garden, floral and ornamental purposes, and all the innumerable places on the farm where wood of the greatest durability is required. Aside from all this, it is susceptible of the finest polish—as you may see by specimens herewith presented—thus making it useful in cabinet work, house and car finishing, a few of the latter being in daily use at this time, made and furnished by E. E. Barney, of Dayton, Ohio. It makes an excellent shingle. But I will not weary your patience further with this class of testimony, and close with a few thoughts on the probable demand and consequent price for this kind of timber.

When we have a commodity to sell, and there is a good demand for it, and no dangerous competition in the market, we can easily run a corner of our own. Now, the lucky grower of durable timber will find himself just in this condition; he will have something to sell which all the world needs, *and must have, and with the supply in no adequate proportion to the demand.* With the feeble effort now being put forth in the production of such timber the demand must increase rather than diminish, and hence prices rule higher rather than lower.

For good red cedar posts we have to pay from thirty to thirty-five cents by the car load, and yet a post as durable can be grown in eight or nine years. Catalpas growing in University Square, in Indianapolis, set seventeen years since, are sixteen inches in diameter, and would make one good railroad tie and three or four fence posts. Such trees will bring a dollar apiece as they stand at this time, and as one thousand such trees can be grown on an acre, it is easy to figure on the profit of such investment.

I know there are many failures in tree planting, many a slip between the cup and lip; and many trees transplant badly, are at once attacked by insects and borers as well as browsed and otherwise injured by cattle. But none of these troubles beset the catalpa. When carefully transplanted in good condition it is morally certain to grow. No borer ever attacks it, and stock will not eat off the leaves. Thus, give it half a chance and it will grow, and when cultivated two or three years it will require no further care. But I desist, thanking you.

HOW TO PROMOTE THE TRUE DIGNITY AND STANDING OF THE FARMER AND HAVE THE YOUTHS ATTRACTED TO FARM LIFE.

BY JAMES A. MOUNT, OF MONTGOMERY COUNTY.

An address delivered before the Farmers' Institute, at Crawfordsville, March, 1882.

The importance of agriculture in supplying human wants, the magnitude of its achievements, need but be understood to command respect and admiration. The true dignity and standing of the farmer will be promoted by a better understanding of the magnitude and greatness of his vocation; by abating the task work of the farm and at the same time increasing the standard of crops and profits. The whole work must be surrounded by the exhilarating influence of intellectual progress. The whole spirit of farming must be elevated till no other can outstrip it in what most adorns and strengthens a civilized state. When this shall have been accomplished, then will the dignity of the farmer be in accord with his great vocation, and the youth attracted to farm life.

AGRICULTURE, PAST, PRESENT AND PROSPECTIVE.

It antedates all other vocations of life. Before the fall, man in his innocence and purity was placed in the Garden and commanded to "dress it and to keep it." After the fall, by Divine decree, "to till the ground from whence he was taken." As we follow the history of man we find the greatest calamities, aside from pestilence or war, have been when agriculture failed. With such failure comes famine, sorrow, suffering and death. We find recorded the promised temporal blessings to God's ancient people were through those channels most conducive to the wants and comforts of man—"seed time and harvest," "the early and the latter rain," "the earth shall yield her increase," "grass in the field for thy cattle." This is the language of such promise, for, says the inspired writer, "the profits of the earth are for all; the king himself is served by the field."

Let the husbandman cease his labors, the plow stand idle in the furrow, the flocks unshorn, the herds unfatted, the fruits ungathered—the sails of commerce would then no longer whiten the sea, and the wheels of transportation would cease to revolve. Factories, foundries, rolling mills, machine shops would cease their busy hum when the great propelling power no longer prompts to activity.

A brief reference to the products and exports of agriculture for the year 1880, will enable us in some measure to comprehend its magnitude:

Indian corn, wheat, rye, oats, barley, buckwheat and potatoes	
aggregated	2,885,853,071 bushels.
Number of acres	122,768,796
Value	\$1,442,559,918
Acres of tobacco, hay and cotton	41,941,771
Value	\$688,491,941
Total acreage	164,710,567
Total value	\$2,131,050,859
Total agricultural exports	\$737,802,017
Total value of all other exports	68,063,736
(See Commissioner's Report of Agriculture for 1880, pp. 199-206.)	

Agriculture alone producing 89½ per cent. of all the exports of the nation.

When we contemplate the prospective greatness of agriculture, it rises in its grandeur far above its present wonderful attainments. From official sources we learn that more than 500,000,000 acres of land, susceptible of agriculture in the United States and territories, are yet unsurveyed. Millions more have been surveyed, not yet occupied, and still millions of acres occupied not yet brought into cultivation. The yield of the land in cultivation will be largely augmented when its resources are properly developed. A reasonable rent from one year's crop of the unsurveyed land, if in cultivation, would cancel the national debt. The united kingdom of Great Britain, in 1880, returned an area under cultivation of 47,000,000 acres. From our unsurveyed land, susceptible of tillage, can be formed an area ten times as large as the cultivated area of England, Ireland, Scotland and Wales combined. Thus we behold the resources of agriculture in this country towering in its magnitude far above all other interests; transcending in its importance all other branches of business. It brings from foreign lands nine times as much wealth as all other industries combined. It was the products of the farm that brought from foreign lands the gold that made resumption possible; restored confidence to business, and has given to this nation a degree of prosperity that fills with amazement and wonder the civilized world. Our present grand achievements, with the vast agricultural resources yet to be developed, point to a period of wealth and greatness, to the acme of which we are but beginning to ascend. It behooves our representatives, State and national, by judicial legislation, to facilitate this great development, and to protect from the mercenary grasp of wealthy corporations this important industry. Legislators should bear in mind the greatest wisdom of a government is displayed in fostering labor and developing her important industries. Many of the eloquent speeches of our Congressmen and Senators savor more of self-interest and self-aggrandizement than the country's good.

Solomon, in his wisdom, said:

"He that gathereth by labor shall increase."

"In all labor there is profit, but the talk of the lips tendeth only to penury."

Labor is the preservative principle of the universe—the creative power of wealth.

That which honors and promotes labor, elevates and ennobles a people.

Wealth, unjustly drawn from the fruits of labor, tend to decay.

"Ill fares the land, to hast'ning ills a prey,
Where wealth accumulates, and men decay;
Princes and lords may flourish, or may fade;
A breath can make them, as a breath has made;
But a bold peasantry, the country's pride,
When once destroyed can never be supplied."

In the brightest days of the Roman republic her Senators deemed it an honor to leave the forum and follow the plow. Cincinnatus was called from the plow to the palace, from the field to the forum, and when he had silenced the angry tumults of State, defeated the invading hosts, resigned the Dictatorship of Rome, and returned to the plow.

"In ancient times, the sacred plow employ'd
The kings, and awful factors of mankind—
Who held the scale of empire, ruled the storm
Of mighty war, then, with unwearied hand,
Disdaining little delicacies, seized
The plow and *gracely independent lived.*"

Our vocation stands enshrined in the glory of its worth. The prosperity of our State and nation is in the keeping of the farmers. If they acquit themselves with dignity and honor their work must be characterized by a spirit of research and investigation, by consultation, and by discussion, until progression is manifested in every department of farm-life. The Grange, exclusively devoted to this work, seeking the elevation of the farmer by social and mental culture, the study and discussion of farm and home development, could be made an auxiliary powerful for good in promoting the true dignity and standing of the farmer.

HOW TO ATTRACT THE YOUTH TO FARM LIFE.

Notwithstanding the importance of agriculture, its past achievements, its present attainments, its glowing prospects for the future, there is a growing disposition upon the part of the youth of the country to abandon the health-giving and ennobling pursuits of the farm for the dangerous excitements and vicissitudes of city life and trade. Boys sometimes think farm life dull, laborious, monotonous. In their ideal visions, their day dream fancies, they long for the throng and excitement of business centers. But alas! their golden dreams too often prove delusive phantoms. The mercantile trade is already filled with men of business experience, clerkships over supplied, professions crowded. Agriculture to-day, in Indiana, offers the best inducements to young men, and promises abundant rewards to intelligent husbandry. Mines of hidden wealth, more certain of profitable returns than the mines of Colorado or Nevada, or the speculations of trade, lie hidden beneath the rich, undeveloped soils of our State. We know whereof we affirm when we say a young man, though poor, if he possesses diligence, energy and pluck, can secure a home in this favored land. Rich soils in the West await the coming of the husbandman; this the government offers you free. Under the "Homestead," or "Pre-emption Act," is offered 160 acres of land, and under the "Tree Culture Act" an additional 160 acres.

Then, why do boys desire to leave a vocation that promises so much? Why

leave a vocation so free from the decoying influence of vice and intemperance? We might ask: Why do men on good farms seek to hasten their fortunes by the fascinating influence of speculation? The success of one in this way will prove an influence that will ruin a multitude. Dr. Holland has truthfully said, "A man securing a fortune by speculation was to be pitied rather than applauded."

Boys are often led to think a fortune can be made in trade centers more readily than on the farm. Success and enthusiasm in farm work will remedy this mistaken ambition.

Again, the keen sense of the boy often beholds the farmer in the background, in all public assemblies and in all public meetings. He sees the farmer illy fitted, by experience or by education, to command respect and attention. They see they do not enjoy the advantages necessary to qualify them for business, social and public life.

With the disappearance of the dense forest, the impenetrable jungle, which confronted the brave men and women who settled Indiana, has passed away the necessity, also, for the incessant labor, privations and hardships incident to pioneer life. We would to-day, as we stand in the enjoyment of their noble achievements, cherish a hallowed remembrance of their great work. We would wreath the brows of the pioneers of Indiana with unfading laurels, for they are worthy.

Standing on the threshold of their great achievements it is our duty, as farmers, to move on in the march of progression. With admiration we behold the brilliant conquests attending the march of science. Remote cities and towns, by means of telegraph and telephone, hold free converse. The mighty deep has been spanned, and thought, with lightning speed, flies from one continent to the other. The elements of nature are being made to serve the will of man. In all this grand march of progress are we, as farmers, keeping pace? If we fail to catch the inspiration, and on our farms and in our homes fail to manifest this spirit of enterprise, then will the youth leave the farm for the more fascinating centers of life. Let the waste places on our farms be made to blossom with beauty, and teem with prosperity. Where marshy swamps now generate malaria and death

Let thorough drainage work be done,
And these low swamps of gloom and death
Into rich harvest fields will turn,
Clad in beauty—laden with wealth.

We find many of the best informed farmers of our State who confirm the belief that fully twenty-five per cent. of all the labor expended in growing the cereals in a majority of the counties of this State is lost by reason of insufficient drainage. While money invested in judicious drainage is paying from twenty-five to one hundred per cent., the progressive farmer will not subject himself and boys to the unthrifty and discouraging process of tilling wet land. The importance of raising the best of stock, and the sound economy of providing comfortable shelter for the same, should command the attention of every farmer in our State. Equally important is that system of farming that husbands with vigilance the fertility of the soil. This is one of the essential requisites to successful farming. In our State, where blue grass grows so luxuriantly, and pure water is so abundant, stock growing

should occupy a more prominent place than at present. To augment the profit, increase the attractions and lighten the burden of farm life, we should grass more and plow less. Brush, logs, weeds and briars should give place to blue grass. With this system of farming no State can excel us, in proportion to our area, in flocks and herds, and in the production of hay and corn to feed them. Of our State we say:

"Let her glad valleys smile with wavy corn;
Let herds and flocks her rising hills adorn."

Fruit culture should also receive more attention from farmers. It contributes to the attractions and luxuries of a home—to the health and comforts of life.

In all the management of the farm, let the boys be consulted; give them an interest in the growing stock. They will then feel that they are an important factor in the management and prosperity of the farm. Ability will thus be developed—an enthusiasm created—that will attract the boys to the country home. The boys of the farm must soon assume the responsibility of the greatest vocation given to man. Our own immortal Washington, ever more enamored by the sickle than the sword, unhesitatingly pronounced agriculture "the most healthy, most useful, most noble employment of man." All persons engaged in agriculture, all societies having for their object the development or promotion of agriculture, should so manifest their power and influence that industry would be encouraged and merit rewarded. If our boys and girls were thus encouraged by a healthy display and competition of their industry and skill, our agricultural societies would thus wield an influence potent for good.

If a part of the large premiums given at our fairs to racing—that which adds no wealth to the country, develops no industry, nor tends to elevate the morals of a people—was given to reward industry, skill, taste and art among the youth of our land, the tendency would be the promotion of labor, the development of wealth and the elevation of youthful ambition.

We now come to that endearing spot, around which must cluster, and in which center, all the attractions of rural life: Home! That endearing appellation touches every fiber of the human soul, and strikes every chord of the human heart with its angelic fingers. Its influence is a great, silent, irresistible and permanent power, shaping and moulding the destiny of our being. "Like the lily that braves the tempest, and like the Alpine flower that leans its cheek on the bosom of perpetual snows, it is exerted amid all the scenes and storms of life." Then let home be the one endearing spot, the joys and attractions of which afford a refuge where the youth delight to dwell—the rural home, isolated as it is in some measure from the world, where the mind is not strengthened by frequent contact with mind. In these homes the mind must be invigorated and strengthened by frequent access to abundance of books and papers. The healthy pursuits of the farm give vigor to the body. The library should be sought to strengthen the mind. The measure of a man is his mind! In the developed mind we behold the great man! A mind occupied is a mind fortified against temptation. Then, let the rural home add to nature's charms; there are abundant opportunities for the higher development of life. To the farmers we look for this much-needed reform. But when shall it begin? The

worthy State Board of Agriculture, in the interest of progression, offer to the farmers of our State golden opportunities to facilitate this work. Let the meetings instituted by the State Board be seconded by a hearty response from the farmers throughout the State. Let these meetings be continued until an enthusiasm is created throughout the State, then a new era in the success of farming will have been inaugurated. Then a spirit of progression will prevail among the farmers, and advantages be offered the youth for mental and social cultivation, fitting them to move with grace and dignity in the highest circles of life. Then will there be a higher development of true manhood and womanhood, and the rural home afford more joys and attractions in its quiet life.

"Oh, friendly to the best pursuits of man,
Friendly to thought, to virtue and to peace;
Domestic life in rural leisure passed!
Few know thy value, few taste thy sweets,
Though many boast thy favors, and affect
To understand and choose thee for their own."

To this life nature offers her rarest beauties and sweetest joys. The farmer may possess these priceless gems if he will. Of this life, Goldthwait has truthfully written: "That for health and substantial wealth, for rare opportunities, for self-improvement, for long life and real independence, farming is the best business in the world." When thus appreciated, agriculture will shine for the adorned in all the brilliant luster of its inestimable worth.

We have beheld agriculture as the first calling of man. We have viewed its onward march as the great motor power of wealth and civilization. Through the wisdom of inspired prophets we look down through the vista of coming time when through the influence of the "glorious Gospel," the millenium shall be ushered in. Then shall universal peace and good will prevail. The sword as the arbiter between nations shall be needed no more. For "nation shall not lift up sword against nation, neither shall they learn war any more." "But they shall sit every man under his vine and under his fig tree, and none shall make them afraid, for the mouth of the Lord hath spoken it." Then shall the peaceful vocation of the farmer be crowned with unfading honor, for the elements of war shall be converted into the useful implements of agriculture. For "they shall beat their swords into plowshares and their spears into pruning hooks."

"Oh, how canst thou renounce the boundless store
Of charms which nature to her votary yields;
The warbling woodland, the resounding shore,
The pomp of groves and the garniture of fields,
All that the genial ray of morning gilds,
And all that echoes to the song of even';
All that the mountain's sheltering bosom shields,
And all the dread magnificence of heaven,
Oh, how canst thou renounce and hope to be forgiven?"

PRACTICAL GARDENING.

 BY HARMON HIATT, OF MONTGOMERY COUNTY.

Delivered before the Farmers' Institute, at Crawfordsville, Ind., March, 1882.

Gardening may properly be divided into three classes: Theoretical gardening, market gardening, and practical gardening for a supply of vegetable products for the table use of the agriculturist. The first, or theoretical gardening, is commonly best understood and explained by our professional men; men of profound reading knowledge; men who are familiar with the system of gardening as practiced by the Egyptians in the colony of the Nile; by the Assyrians in the vicinity of Babylon, or the famed hanging gardens within its walls; or the thousand garden plats that surrounded Rome in her palmiest days, from one of which Cincinnatus was taken from his plow to a high position of State. Or, if they pass on to our day, the day when chemistry, botany, geology and all the sciences are used to unfold the hidden mysteries that have long lain concealed in the archives of the Eternal mind, they can explain the component parts of each vegetable, and the requisite soil and fertilizer to develop its most successful production.

This class of gardeners do their work mostly by proxy. "They bind heavy burdens on man's shoulders, but they themselves will not remove them with one of their fingers." Their theories may be correct, but the circumstances that unavoidably surround the application of the theory, lets the amateur gardener fail, and really disgusts him with the business, till he reads up again for another year's experience. This theoretical gardening has many valuable characteristics. It serves as a kind of storehouse from which the practical gardener can draw his supplies, and realize material advantage, provided, however, he learns to know that theory is not at all times practicable. These gentlemen are useful; though they may sometimes overdraw their subject, yet they form an important factor in the progress of the age and the era of our civilization. I bid them go on, and grapple with nature's mysterious work, and wrench from her the locked up stores she may yet have for the toiling sons of men.

Second. The market gardener is one whose business is to cultivate all kinds of vegetable production, whether suited to his locality or to some foreign clime, by adopting a process of forcing the season—by glass houses, hot beds, etc. This forcing process, if properly applied, enables him to furnish his city or village market with tropical vegetation, though the biting frost and snows of winter are howling around his home. This part of gardening is really a mechanical occupation, or trade, that requires a regular apprenticeship to become proficient; and I

would not advise any one to engage in it with any more assurance of success, than to engage in any of the more skilled mechanical professions. It will get away with him.

Third. But practical gardening is something that almost every farmer, mechanic or merchant believes that he understands. Many good, well-meaning men will get the almanac and see when the moon is in good condition to plant potatoes, or beets, or parsnips, or beans, or peas, regardless of the condition of the soil. I will venture to assert that some of you have had your potatoes planted ten days already, because it would be getting late to plant early potatoes in the next old moon. You planted when the ground was too wet; and why? Because you wanted early potatoes, you say. Do you not know that the vitality of the seed is injured, and in many cases destroyed, by the cold, wet weather that must necessarily follow such early planting; but then the moon was right. The next almanac you take home with you just cut out that picture of a man on the second leaf, where a dozen or more things are pointing at him, and burn it, that your children may forget all about these old astrological signs, for they are a relic of barbarism, and we are living in an astronomical age, in which the telescope probes the mysteries of the zodiacal signs and consigns them to a merited oblivion.

THE PLACE FOR A GARDEN.

It should be situated near the residence, if the declivity be to the south or east. The near proximity to the dwelling renders it more accessible to the kitchen, and much time of mornings and evenings, after the day's work is done, can be profitably employed in walking through it, with a hoe in your hand, and using it vigorously now and then. When the location is fixed for the garden, and its dimensions and shape fully determined, which in all cases should be that of a parallelogram, much longer than it is wide, then it should be underdrained with tile from the top to the bottom of the declivity, about one or two rods apart and four feet deep. Bear this in mind, for this underdraining will pay largely by carrying off the water, and thus assist the moon to do its duty! The next thing to do is to thoroughly enrich the soil. This can be done by spreading over the surface, manure at the rate of eighty cords to the acre. This will cover the surface about five inches deep. Now put a good plow through the soil, at least eight inches deep, and a subsoil plow in the bottom of this furrow as deep as you can get it. Then harrow and pulverize the ground and work the manure down all that is possible. Now, if you have plenty of well rotted manure, give it another coat of one or two inches and re-plow and harrow again. And my word for it, you may plant any vegetable that is adapted to our climate, in this garden, whether the moon is right or not, and you will get a paying crop. The rains may come and go, and the heavens may withhold their coveted dew drops, and the parching rays of the sun may peer down from his fiery surface, but your cabbage, and beets, and beans, and peas, and onions, and potatoes, and melons, and cucumbers, will all hold up their ten thousand tiny mouths and breathe in the carbonic acid gas, and grow and swell to gigantic proportions. I say the garden should be a parallelogram in shape. My reason for this is, that the cultivation may be performed with the horse hoe and such other appli-

ances. In planting let everything be in straight rows lengthwise of the garden. One horse, with the new style of machinery, will put a garden in perfect condition in one hour that would require the hand labor of two or three men a whole day, beside doing the work much better. All the beets, onions, parsnips, radishes, potatoes, cabbages, peas, beans, and indeed everything that we cultivate in our gardens, can be plowed with a hand hoe if planted in rows, and not in little square beds with walks crossing at right angles. Discard all these, as well as the common flowers, such as marigold, lockspur, and a dozen others, and have a plat in the door yard for these, but keep them out of the garden. The time to plant is governed by the condition of the soil and nature of the season. But all the more tender kind of vegetation should not be planted till the danger from late frost is passed. Some things will bear a low temperature without injury, such as onions, peas and potatoes, if well in the ground. If the garden is put in the condition I give, there is no special hurry to plant. As the ground gets warm the seed will sprout readily and grow without a check. But here, let me caution you to try a few of all your seeds in the house by the stove before you plant, to see if they possess proper vitality. Plant good seed in good ground, when the sun has warmed its bosom, and you may expect a crop.

WOMAN AS A CO-LABORER.

From the beginning of time, when Eve sat beneath Eden's rosy bower, after she had trimmed the vines and flowers that begirt the banks of the golden Pison, and looked wistfully for the return of her liege lord from his daily vocation, while the moonbeams stood tiptoe on the eastern wall of Paradise, and the breeze wafted the melody of the nightingale perched on the tree of life to her ears it has been the custom for women to assist in the planting of seeds and the cultivation of vegetables and flowers. After the cold blasts of winter have spent their chilling influence around her home, and the ice-bound earth is no longer heremetrically sealed, and the sun begins to peer up over the hill-tops, and the little crocus peeps out from its hiding place, and all the wild weeds begin to wave their upright forms to catch the food that floats in the ambient air, and the little brooks go laughing from the springs, and the whistling quail calls his mate from the distant covert, man says to his mate, let us plant some seeds, that our table may groan with the fruits of our labor and we may feast on the luxuries of life.

Woman may not possess the right to vote, she may not be called to a seat in the legislative halls, she may not be assigned to a military command, but she can take a position of equality by the side of man in the garden; she is his equal in weeding the onions, the peas, the cabbages and the radishes, and indeed most men consider her superior, and feel willing to have her take the entire charge. Some women fear that the sun will tan their hands. I advise such to go to our friends, Miller & Thompson, and procure some of their button kids, price 20 cts. But, ladies, old mother Eve well understood this thing of working out in the open air for health, for she lived to a good old age, was not afflicted with dyspepsia, or any of the thousand ailments to which many of our delicate house-plant women are subject.

Here is a great opportunity for her to gain health in the garden. She does not,

like Penelope, have to spin the snow white wool and weave the gaudy fabrics that adorn the temples, for these are now made by machinery, but she can sow the seeds, and weed the plants, and I hope the day is not far distant when she can step from the sanctum and the forum, where she so successfully battles with man for her rights, up to the ballot box, and help to purify the ballot, to wipe away the stain of political dishonesty, to wrest herself from being the slave of man, to be his equal in virtue, his equal in intellect, his equal in scientific knowledge, his equal in politics.

STOCKING FISH PONDS.

BY PROF. D. S. JORDAN, OF THE STATE UNIVERSITY.

I have lately received numerous letters of inquiry in regard to the stocking of fish ponds. The following remarks on this subject may therefore be of interest. There are, in general, in the United States three sorts of fish ponds, each one of which I may briefly notice:

1. Ponds for Trout—Where the water of a pond is very cold and very pure, there is no kind of fish more attractive, and perhaps none more profitable than brook trout. There are in this State, however, very few ponds where this aristocratic fish can be reared, so that I need say here nothing further in regard to it.

2. Ponds for "Game Fish"—In any clear pond or lake in this State "gamy" or carnivorous fishes can be reared.

Of these our native fishes are the best, the white bass, the black bass, the croppie, the yellow perch, the rock bass, and other species of sun-fish and the different sorts of small cat-fish. The latter are not very high game. The writer has, however, a liking for them as pond fishes, for they are good food, hardy and prolific, and withal morally certain not to waste the fisherman's time, as they take the hook with unfailing accuracy and take it for "keeps." Such a fish-pond is especially a boy's pond, and the cat-fish is pre-eminently a "boy's fish." To stock such a pond there is nothing special to do but to free it, if possible, from gars, dog-fish and pickerel, and then to put in as many live fish as practicable of the species desired, with minnows and suckers for food. Cat-fish will thrive in almost any pond which does not dry up in the summer, but the bass and sun-fish are more particular.

3. Carp Ponds—For most ponds which may be made in this State, no fish is so well suited as the European carp. It bears the same relation to the native fishes that a hog does to our wild animals or the hen to our native game birds. It is not so handsome or so delicate as the best of the native fishes. There is no excitement in its capture, but it furnishes food for a hungry world. The carp much resembles the Buffalo fish in size and form; it has the same thick head, large scales and toothless mouth. Its flesh is, however, much finer in quality, although by no means equal to that of white fish or brook trout. The carp will thrive in almost any water. It

feeds on vegetable substance, frog spittle, water weeds, bread crumbs, bran, almost anything that a pig or a chicken will eat. It will take the hook sometimes, if imbedded in a bread crumb, but so will a hen under similar circumstances. Its growth is very rapid under favorable conditions, and it is very prolific. It is said to devour its own spawn when food is scarce, but, unlike the carnivorous fishes, it rarely eats its own young. The ideal carp pond is clear, warm, weedy, deep in the middle, shallow along the edges, and free from other fishes. A pond which can be drained at will is convenient where fish are raised for the markets, as the large fish can then be selected and the smaller ones left. If the fish are caught with a seine many small ones will be injured. How to get carp: In the course of a few years carp will be as plentiful in Indiana as in Germany, and every owner of a pond will have carp to sell "for seed." For the present, however, the United States Fish Commissioner undertakes to supply a few without charge (except for expressage, etc.,) to any owner of a pond who may make application for them. A distribution to this State took place last fall. Another will probably be made next summer. Those wishing carp should write for application blanks to Prof. Spencer F. Baird, United States Commissioner of Fisheries, Washington, D. C. The Fish Commissioner of this State, Hon. Calvin Fletcher, of Spencer, is an enthusiast on the subject of carp, and has been very successful in rearing them.

COMMERCIAL FERTILIZERS.

BY PROFESSOR H. W. WILEY, OF PURDUE UNIVERSITY, STATE CHEMIST.

Alex. Heron, Secretary State Board of Agriculture:

With your permission I continue my report on commercial fertilizers. In last year's report I brought the number up to 38. I, therefore, begin with No. 39. The number corresponding to the analysis is printed on every tag or label that accompanies the fertilizers sold. Farmers should notice carefully whether the tags bear these numbers and my signature. All which do not are spurious, and those selling such illegal packages should be made to suffer the full penalty of the law. I desire to call the attention of the farmers of the State to several practical points in connection with the use of fertilizers.

The chief ingredients of value in commercial fertilizers are phosphoric acid, ammonia and potash. Potash, known chemically as oxide of potassium, is a constant constituent of all terrestrial plants, in which it is combined with some organic acid, just as soda is of those of marine growth. It is found in all soils, and has its origin in the decomposition of feldspathic rocks and other minerals containing potassium. It is one of the most important constituents of ashes, and the value of ashes as a fertilizer depends chiefly on its presence. As soils are cultivated the natural supply of potash is gradually exhausted, and hence it is highly advisable

to restore as much as possible to the soil the ashes of the plants which it produces. There are many natural deposits of potash salts, and these furnish nearly all the potash that is found in commercial fertilizers.

Ammonia is a great stimulus to plant growth, and hence it is especially valuable to start the young plant in the early spring. In commercial fertilizers the ammonia is most available which is present combined with some acid, viz., in the form of sulphate or nitrate. Our law, however, requires that all the nitrogen which may be present as albuminoids in a fertilizer, be reckoned as ammonia. For this reason the sample of fertilizer is burned with soda-lime, which process converts all albuminoid nitrogen into ammonia. Hair, horn and hoof are thus converted into ammonia, although in the state in which they are placed in the soil they have very little value as fertilizers.

The law should be so amended as to make a distinction between ammonia present as salts, which are of great value, and nitrogen present in such compounds, as hair, horn and hoof, which is of very little value.

Phosphoric acid is determined in three different states, viz.: soluble, insoluble and reverted.

By soluble acid is meant that which is soluble in water; by insoluble, that which is insoluble in water, and by reverted, that which is insoluble in water but soluble in a neutral solution of ammonia citrate of a given strength and at a given temperature.*

I am inclined to think that it would be better to estimate phosphoric acid in two states only, soluble and insoluble. It is well known that there is no ammonium citrate in the soil which can exert a soluble effect on phosphate of calcium.

The great variations in the amounts of phosphate soluble in citrate solutions renders the estimation of reverted acid exceedingly unsatisfactory. To show how unreliable these results are, I requested Mr. H. A. Huston to make a series of determinations under various conditions, the results of which are herein published. These results are sufficient to show the farmers of the State that "reverted phosphoric acid," which is rated at the same price as the "soluble," has more value in increasing the cost of the fertilizer than in increasing the yield of the crops.

In only two cases have I learned of any violation of the provisions of the law. In these cases the disregard of the law seems to have arisen rather from ignorance than from evil intention. Under the action of the law our farmers can be assured of securing reasonably reliable fertilizers, although the possibilities of fraud are not as well guarded against as they should be.

In the valuation I have used the same rates as last year, except that ammonia is reckoned at 18 cents per pound.

My assistants, Messrs. Spencer and Peters, by the care and accuracy with which they have done their work, have deserved well of the farmers of the State.

Respectfully,

H. W. WILEY.

State Chemist.

Purdue University, April 5, 1883.

* All phosphate of calcium, soluble in ammonium citrate, has been credited in the following tables as affording "reverted" acid. This term, however, properly belongs only to such soluble acid in super-phosphates.

ANALYSES
OF
COMMERCIAL FERTILIZERS.

ANALYSES OF COMMER

Station Number.	NAME OF FERTILIZER.	NAME AND ADDRESS OF MANUFACTURER.	PER CENT.	
			Moisture.	Soluble Phosphoric Acid.
39	Pure Raw Bone	Conrad & Kammerer, New Albany	8.07	..
40	Ammoniated Ground Bone	Central Chemical and Manufacturing Company, Cincinnati	10.61	..
41	Buckeye Superphosphate	Cleveland Drer Company, Cleveland	25.68	7.27
42	Fine Ground Bone	Thompson & Edwards, Chicago . . . . .	..	..
43	Banner Bone Dust	Indianapolis Fertilizer Company, Indianapolis	6.14	43
45	Common Sense Fertilizer	D. R. Castleman, Louisville	6.93	17
46	Raw Bone Meal	J. B. Jones, Louisville	8.17	..
47	Ammoniated Bone Meal	J. B. Jones, Louisville	5.86	06
48	Pure Raw Bone	Henry Kraus & Co., St. Louis	9.41	..
49	Standard Fertilizer	Standard Fertilizer Company, Cincinnati	13.83	..
53	Raw Bone Dust	Wm. Skene, Louisville	8.82	..
54	Spent Bone Black	Detroit Carbon Works, Detroit	13.76	9.27
55	Garden Fertilizer	Wm. Skene, Louisville	8.43	27
56	Louisville Superphosphate	Wm. Skene, Louisville	9.40	7.57
57	Common Sense Fertilizer	D. R. Castleman, Louisville	5.06	36
58	Dissolved Bone Phosphate	P. Zell, Baltimore	13.94	10.10
59	Economizer Phosphate	P. Zell, Baltimore	5.84	4.99
60	Ammoniated Ground Bone	Central Chemical Manufacturing Company, Cincinnati	9.44	..
61	Bromophyte	Duckwall, Troxwell & Co, Louisville	6.41	..
62	Fine Raw Bone	Northwestern Fertilizing Company, Chicago	9.66	..
63	\$26 Phosphate	Northwestern Fertilizing Company, Chicago	11.93	6.10
64	National Bone Dust	Northwestern Fertilizing Company, Chicago	15.56	8.56
65	Garden City Superphosphate	Northwestern Fertilizing Company, Chicago	12.65	7.96
66	Ammoniated Dissolved Bone	Northwestern Fertilizing Company, Chicago	13.48	6.79
67	Raw Bone Meal	St. Louis Carbon Works, St. Louis	8.53	..
68	Raw Bone Meal	Western Chemical Company, St. Louis	7.48	..
69	Pure Raw Bone	National Fertilizing Company, Nashville	8.09	..
70	Tennessee Superphosphate	National Fertilizing Company, Nashville	12.39	9.21
71	Rock City Superphosphate	National Fertilizing Company, Nashville	8.28	9.83
72	Tobacco Fertilizer	National Fertilizing Company, Nashville	11.24	9.70
73	Acid Phosphate	National Fertilizing Company, Nashville	12.79	13.41

CIAL FERTILIZERS.

OF CONSTITUENTS.				Pounds Soluble Phosphoric Acid per ton.	Value at 10 Cents Per Pound.	Pounds Insoluble Phosphoric Acid per ton.	Value at 6 Cents Per Pound.	Pounds Reverted Phosphoric Acid per ton.	Value at 10 Cents Per Pound.	Pounds Ammonia per ton.	Value at 18 Cents Per Pound.	Pounds Potassium Oxide per ton.	Value at 6 Cents Per Pound.	Total Valuation per ton.
Insoluble Phosphoric Acid.	Reverted Phosphoric Acid.	Ammonia.	Potassium Oxide.											
16.93	3.35	4.67		...	...	338.6	\$20 32	17.	\$1 70	93.9	\$16 81	...	...	\$43 83
20.13	3.69	2.71		...	...	402.6	24 16	73.8	7 38	54.2	9 76	...	...	41 30
2.24		2.72		145.4	\$14 54	49.8	2 69			54.4	9 79	...	...	27 02
19.66	2.74	1.87		...	...	393.2	23 59	54.8	5 48	37.4	6 73	...	...	35 80
7.32	2.85	2.30		8.6	86	146.4	8 78	57.	5 70	46.	8 28	...	...	23 62
26	.03	4.42	3.98	3.4	84	5.2	31	.6	06	88.4	15 91	...	...	21 28
22.11		1.45		...	...	442.2	25 53		29.	5 22	77.5	\$4 60	...	31 75
15.76	5.18	3.15		1.2	12	315.2	18 90	103.6	10 36	63.	11 34	...	...	40 73
14.77	8.68	3.40		...	...	285.4	17 72	193.6	19 36	68.	12 24	...	...	47 32
.51	.01	1.45	3.37	...	...	10.2	61	.2	02	29.	5 22	67.4	4 04	9 89
19.96		4.02		...	...	399.1	23 98	...	...	80.8	14 54	...	...	38 52
.49	.02	3.25		185.4	18 54	9.8	59	.4	04	65.	11 70	55.4	3 32	34 19
12.35	2.37	.68	4.75	5.4	54	247.	14 82	44.4	4 44	13.8	2 45	95.	5 70	28 45
5.52	.53	.86	1.25	151.4	15 14	110.4	6 62	10.2	1 02	16.4	2 90	25.	1 52	27 43
1.66	1.65	2.80	1.77	7.2	72	33.2	1 99	33.	3 30	56.	10 08	35.4	2 12	18 21
2.80	.12	.27	.99	202.	20 20	56.	3 36	2.4	24	5.4	97	19.8	1 19	25 96
4.63	.69	1.82		9.8	98	92.6	5 56	13.8	1 38	32.9	5 83	...	...	13 75
21.77	2.28	2.93		...	...	435.4	26 12	45.6	4 56	58.6	10 55	...	...	41 23
.93	2.17	2.21		...	...	18.6	1 12	43.6	4 36	44.2	7 76	...	...	13 44
16.66	6.72	4.33		...	...	333.2	19 99	134.4	13 44	86.6	15 59	...	...	49 02
9.61	.80	2.43		122.	12 20	192.2	11 53	16.	1 60	48.6	8 75	...	...	33 90
2.76	.10	1.92		171.2	17 12	55.2	3 31	2.	20	38.4	6 91	...	...	27 54
1.93	1.19	2.95	1.65	159.2	15 92	38.6	2 02	23.8	2 38	59.	10 62	23.	1 96	32 92
2.48	2.01	3.46	1.47	137.8	13 58	49.6	2 96	40.2	4 02	69.2	12 46	29.4	1 76	34 80
18.19	4.75	4.48		...	...	363.8	21 83	95.	9 50	89.6	16 13	...	...	47 46
20.53	2.56	4.42		...	...	410.6	24 64	51.2	5 12	88.4	15 91	...	...	45 67
18.06	3.92	3.50		...	...	361.6	21 70	78.4	7 84	70.	12 60	...	...	42 14
4.32	.8	2.64	1.12	184.2	18 42	86.4	5 18	16.	1 60	52.8	9 50	22.4	1 65	36 35
3.96		2.38	1.43	199.6	19 96	79.6	4 78	...	...	47.6	8 57	28.5	1 72	37 03
3.60	.41	3.28	3.47	194.	19 40	72.	4 32	6.2	62	61.6	11 09	79.4	4 26	39 89
3.56		.23		268.2	26 82	71.6	4 30	...	...	4.6	83	...	...	31 93

INFLUENCE OF TIME AND TEMPERATURE ON THE AMOUNT OF PHOSPHORIC ACID DISSOLVED FROM COMMERCIAL FERTILIZERS BY CITRATE OF AMMONIUM.

BY H. A. HUSTON, OF LAFAYETTE.

In the fertilizers of commerce phosphoric acid may exist in three states, soluble, insoluble, and reverted. Under soluble are classed all phosphates soluble in water; under reverted is classed all that part of the phosphoric anhydride present which has once been in such combinations that it was soluble in water, but which has become insoluble in water on account of entering into combination with bases that form phosphates insoluble in water but soluble in citrates or oxalates of the alkalies; while insoluble includes those phosphates that are nearly insoluble in water or the citrates or oxalates of the alkalies.

Of the three forms the insoluble is considered the least valuable as a fertilizer, since it is not readily assimilated by plants; while soluble is generally understood to be more valuable as a plant food, than reverted;¹ but the nature of the soil seems to exercise considerable influence in this matter.² Hence it becomes a matter of considerable importance to know the percentages of each form of phosphoric acid present in a fertilizer in order to determine its value to the farmer.

The soluble is readily obtained by treating the sample with water and estimating the amount of phosphoric acid in the solution.³ The residue contains the insoluble and reverted.

Various methods have been suggested for separating the insoluble from the reverted; among them are: I. The method of Peterman, in which the reverted is dissolved out by citrate of ammonium and then determined in the solution, or the insoluble in the residue is determined and the reverted estimated by difference. II. Other authorities suggest the use of oxalate of ammonium or potassium as a solvent. III. Grupe and Tollens recommend the use of a dilute solution (0.25 per cent.) of citric acid.[†]

The object of the investigations, of which this paper is an account, was to determine the influence of lime and temperature on the amount of reverted phosphoric acid dissolved from fertilizers by citrate of ammonium.

The sample used was a raw bone fertilizer. It was thoroughly mixed but not pulverized, for the sample was already in quite a fine state of division.

The solution of citrate of ammonium was made by dissolving 255 gms. of crys-

1. Report Conn. Exp. Station, 1880, page 18.

2. Report Conn. Exp. Station, 1880, page 60, *et seq.*

3. Liebig's Annalen, 198, 290.

† Berichte der deutschen chemischen Gesellschaft. XIV., 750.

tallized citrate of ammonium in 1 liter of cold water, and rendering the solution neutral with ammoniac hydrate. The specific gravity of the solution was 1.09.¹ The fertilizer was found to contain no soluble phosphoric acid, so no treatment with water was necessary. In each case 2 gms. of the fertilizer were weighed out, and placed in a flask and 100 c. c. of the citrate solution added. The flask was then tightly corked and placed on a water bath, and the temperature rapidly raised to the required point and maintained there for a given time, care being taken to shake the flask every five minutes.² The material in the flask was filtered immediately, and the residue washed with a mixture of equal parts of the citrate solution and water.³

The residue and filter paper were then transferred to a platinum dish, dried and burned until white. In this way all organic matter was destroyed. The ash is then transferred to a beaker, and the platinum dish thoroughly washed with boiling concentrated nitric acid. The washings are added to the ash in the beaker, more nitric acid added, if necessary, and the whole boiled for some time, in order to convert all the phosphates into orthophosphates. The solution is diluted with water, filtered, made up to 100 c. c., thoroughly mixed, and used for the determination of the insoluble phosphoric acid. The total amount of phosphoric acid present in the fertilizer, which had been determined in a separate sample, minus the sum of the soluble and insoluble, gives the amount of reverted dissolved by the citrate solution. This method of estimating the reverted by difference is preferred because of the difficulties attending the determination of phosphoric acid in presence of citrate of ammonium.

In order to determine the phosphoric acid, in the solution of the insoluble, two special solutions are needed—a molybdate solution and a magnesia mixture. The former is made by dissolving 115 gms. of molybdic acid in 480 c. c. of strong ammonia and 1 liter of cold water, and, pouring the solution into 1 liter of concentrated nitric acid, being careful to avoid all rise of temperature; 100 c. c. of the solution thus formed will precipitate .2 gms. of phosphoric anhydride.⁴

The magnesia mixture is made by dissolving 110 gms. of chloride of magnesium and 140 gms. of chloride of ammonium in 1300 c. c. of cold water and making up to 2 L. with strong ammoniac hydrate; 10 c. c. of this mixture will precipitate about .2 gms. of phosphoric anhydride⁵. An excess is generally added because it diminishes the solubility of the double phosphate.

In each determination the following method was pursued: 25 c. c. (equal to .5 gms. of fertilizer) of the nitric acid solution of the fertilizer ash were placed in a beaker and 100 c. c. of the molybdate solution added. This was allowed to stand for five hours and then filtered. The yellow precipitate consists of phosphomolybdate of ammonium. The precipitate is washed with a mixture of equal parts of the molybdate solution and water, and then dissolved on the paper in the smallest quantity possible of hot ammonia, the paper washed with hot water and 15 c. c.

1. Proceedings Convention of American Chemists. VIII., 2, (b.)

2. Ibid. 3. Ibid.

4. Sutton's Volumetric Analysis, 255.

5. Ibid.

of the magnesia mixture added. This is stirred and allowed to stand for three hours, filtered through a Gooch crucible, washed with a mixture of one part of ammonia and three parts water, dried, ignited and the phosphoric acid determined as pyrophosphate of magnesium.

A series of determinations was first made to ascertain the influence of *temperature* on the amount of reverted acid dissolved by the citrate solution. The conditions and results appear in the following table :

Time, 30 min. Temperature, 30°.¹

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Reverted.</i>
20.28	17.37	2.91
	17.39	2.89
	17.85	2.43
	Mean 17.52	2.76

Time, 30 min. Temperature, 40°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Reverted.</i>
20.28	16.19	4.09
	16.42	3.86
	16.22	4.06
	Mean 16.27	4.01

Time, 30 min. Temperature, 50°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Invert.</i>
20.28	16.94	3.34
	16.50	3.78
	17.23	3.05
	Mean 16.89	3.39

Time, 30 min. Temperature, 60°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Invert.</i>
20.28	13.94	5.34
	14.61	5.67
	14.65	5.63
	Mean 14.40	5.88

From the table it will be seen that as the temperature rises, the amount of acid dissolved increases. This is due to increased action of the citrate of ammonium on the insoluble.* But there appeared to be a peculiar exception, since at 50° less was dissolved than at 40°. As this might possibly have been due to an exchange of samples during the determinations, the determinations at 40° and 50° were carefully repeated with new samples and the following results obtained:

1. All degrees of temperature are centigrade.

*Berichte der deutschen Gesellschaft. XIII, 1267.

Time, 30 min. Temperature, 40°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Invert.</i>
20.28	13.98	6.30
	14.30	5.98
	14.26	6.02
	Mean 14.18	6.10

Time, 30 min. Temperature, 50°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Invert.</i>
20.28	15.01	5.27
	14.94	5.34
	15.58	4.70
	Mean 15.17	5.11

Thus it appears that the exception is confirmed, but more determinations ought to be made before it can be said to be established.

Next a series of determinations was made to find the influence of *time* on the amount of acid dissolved. The results appear in the following table:

Time, 30 min. Temperature, 40°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Reverted.</i>
20.28	16.19	4.09
	16.42	3.86
	16.22	4.06
	Mean 16.27	4.01

Time, 45 min. Temperature, 40°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Reverted.</i>
20.28	15.25	5.03
	15.55	4.73
	15.12	5.16
	Mean 15.31	4.97

Time, 60 min. Temperature, 40°.

<i>Per Cent. Total.</i>	<i>Per Cent. Insoluble.</i>	<i>Per Cent. Reverted.</i>
20.28	13.94	6.34
	14.61	5.67
	14.65	5.63
	Mean 14.40	5.92

Thus it appears that as the time is increased the amount of acid dissolved is increased. Hence, the importance of chemists agreeing on a uniform scale of time and temperature in making reverted determinations, becomes evident.

REPORTS
OF
County and District Agricultural Societies,
EMBRACING THE
CONDITION OF AGRICULTURE,
FOR THE YEAR 1882.
FOLLOWED BY A CONDENSED FINANCIAL EXHIBIT AND NUMBER OF ENTRIES IN
TABLE FORM OF ALL THE AGRICULTURAL SOCIETIES REPORTED, WITH
A LIST OF THE NAMES AND ADDRESSES OF THE PRIN-
CIPAL OFFICERS OF EACH, AND
COMPARATIVE STATISTICS OF PRODUCTS IN INDIANA.

ALLEN COUNTY.

The ninth annual fair was held in the city of Fort Wayne, September 25 to 29, inclusive. From a lack of sufficient encouragement, the old organization disbanded, and was succeeded by an association of five gentlemen, who leased the grounds for a term of years, and at once commenced the work of preparing for the fair, the dates having been arranged by the old association.

A thorough system of advertising was adopted, and so closely followed that there were but few families in the northern part of the State but that knew the dates of the *Northern Indiana Fair*.

A very liberal Premium List was prepared and widely distributed, the members of the association themselves visiting every fair where it was thought possible to gain an exhibitor or visitor. The result was that the show, in every department, was unusually fine (except fruit). We were compelled to erect (after the fair had commenced) additional stalls for sheep and swine. The show of cattle was unusually

fine, there being over one hundred and twenty head on the grounds, among them a very fine herd of "Galloways," lately imported by Mr. John H. Bass, of this city, who also had on exhibition seven head of imported Clydesdale horses. Our gate receipts were very satisfactory, leaving a net balance in the treasury of over \$3,500, after paying everything in full, and making some very needed improvements. Our society is in a flourishing condition. We hope to be able to erect an exposition building before the next fair. Plans are being drawn now, and with a little assistance from our merchants, we will have a fair that will be a credit to any State. Allen county itself is also in a very prosperous condition. The wheat crop of the county was an average one, while oats were unusually good. The hay crop was heavy, the weather being favorable for cutting and storing. There perhaps never was so large a corn crop as that of the past year, which may also be said of the potato and vegetable crop. The fruit crop was almost a failure.

There is a marked improvement in live stock in the county.

W. W. ROCKHILL, Secretary.

BARTHOLOMEW COUNTY.

The Bartholomew County Agricultural Fair for 1882 was held on the Society's grounds as advertised, beginning August 28, and lasting the whole week. The weather was very inauspicious. It rained continuously from Monday morning—the opening day—until Thursday night. Friday was the only bright day we had during the week, when the attendance was large. Notwithstanding the elements were against us the fair was a success and paid its premiums in full as awarded. We had an excellent show of horses and as fine an exhibition of cattle as was ever seen on the grounds. In hogs and sheep there were but a few entries, and these were made principally by parties living outside of the county. The display of grain and vegetables was meagre. The Mechanical Department was fairly represented, and but for the inclemency of the weather, would have been extensive.

Owing to our having cut out professional exhibitors the year previous in the miscellaneous, or Ladies' Fancy Work Department, by marking the displays known to have been on exhibit before, as "unworthy," the entries under this head were very scarce, yet the department was not wholly without attractions.

These *professionals* follow our county fairs, making the circuit with their wares, entering them in classes exempt from fees. They are a pest to Secretaries and an ulcer on the treasury. In our premium list for 1881 (unchanged from former years,) there were 144 articles enumerated in the Miscellaneous Department. Five different persons entered the whole list from beginning to end. This evil exists in other departments also. Even the "honest farmer's" record is smirched with it.

Choice grains, seeds and vegetables were known to have been purchased and entered at our fair, and carried elsewhere for exhibition; and such articles as were not perishable finally stored away with great care for future service in the same line. We closed the deal on this business at our last fair, and thereby incurred the enmity and lost the influence of quite a number of "respectable people."

Wheat and corn are the principal products of our county. But little barley is raised, and not enough oats for home consumption. The wheat is mixed, no single kind or seed predominating. It is all known as red. The corn is all white, and notably of the purest seed, being principally what is known as the "Armstrong" selection.

The erection of two large hominy mills, and a big starch mill, at Columbus—the hominy mills having a joint capacity of grinding 5,000 bushels of corn per day, and the starch mill a capacity of 2,000 bushels per day—gives our farmers a good market for their corn, at a price always equal to quotations in either the Indianapolis or Cincinnati market. As a consequence of these large enterprises, and the excellent corn market they afford, hog feeding in our county is a thing of the past; and the packing houses, which formerly did a thriving business every fall and winter, are unoccupied, and going to decay. Hogs, except in rare instances, are now fed only for breeding purposes and domestic use.

There is but little interest manifested in cattle and sheep raising. We have one or two breeders of short horns, in a limited way, and a few fine sheep are raised, but not enough in quantity or quality to attract attention, either at home or abroad.

Our fair grounds have been greatly improved and beautified. A fine club house and amphitheater have been built. These buildings are beautiful in structure and ample in accommodations. The race track has been widened and perfectly graded; the trees are trimmed and grass kept like a lawn, and the whole grounds made to assume the appearance of neatness and business. These improvements cost over \$8,000. Many excellent people condemned the enterprise, and many fanatics villified and abused its managers, but it went on all the same, and will continue to go on until the people of Bartholomew will be proud of the institution, for we will have an attractive fair every year, offer good premiums and pay every cent awarded in cash. Intoxicants sold on the grounds in conformity with the laws of the State and general government, and under perfect police surveillance, is, in the opinion of the management of our fair, wiser far than the prevailing custom of selling surreptitiously and in violation of the law. The annual fairs held in the different counties of our State are called "Agricultural," but if they were to depend alone on the patronage of the farmer or those only interested in the products of the farm, they would be dead failures in most communities. We hold that they should be managed or run on business principles and made attractive to all classes of the people; that temperance, politics or religion should not constitute an element in their formation or exercise an influence in their management beyond that unprejudiced moral influence that is the natural foundation of all well regulated institutions.

RICHARD THOMAS, Secretary.

BLACKFORD COUNTY.

The whirligig of time, in its annual revolution, again brings us to the front to report one of the best fairs of the season. Not one of the biggest, or loudest, by any means, but one of those real, genuine institutions, of which there are but few

extant, that needs no coaching or grooming to "show up." Not a "pumpkin fair," understand, in which the services of Diogenes with his lamp at mid-day would be an indispensable adjunct to corral the exhibits and "herd" the vast multitude, while the curtain was being rung up and the show made, only to be denounced by some enterprising individual who made his grand entry under the fence, as a "snide performance," and "didn't pay, no how."

No, sir, ours was a different kind of an affair, one of those great big institutions that reaches up higher and spreads out wider as it grows older; one that you can take hold of and go into with some degree of confidence and satisfaction, knowing that you will realize a net profit of at least three dollars and a half on a single admission ticket, for which twenty-five cents pays the bill.

In my last report, I believe, I made the statement that we had one of the most pleasant fair grounds, as well as the best half-mile track in the State, and for that reason, as well as a natural modesty peculiar to the citizens of our county, I shall make no further reference to that subject at present, only to say that the statement, if made, was entirely correct, and the half "had not been told." In the beginning of our career as an agricultural society, some five years ago, we started out on the principle that "honesty is the best policy"—a very slow way to make money, by the way—and, singularly enough, have attempted to "practice what we preach," and, what is more remarkable, have succeeded admirably. This, however, has destroyed the usefulness of the "wheel of fortune," sent the manipulator of "chuck luck" and "Honest John" to a more congenial clime, while the ugly face of the "Hieronymous man" has been conspicuous only for his absence. Being somewhat in debt, we scaled our premiums down on one or two occasions in order to get out; that was a failure, however, as we only got further in. We have been charging an entry fee of ten per cent. on all articles entered, but at our last exhibition concluded to reverse the whole business by raising the premiums, enlarging the premium list, and making all entries, except speed, free, deducting twenty per cent. from the premiums awarded, and in this we succeeded splendidly. The per cent. collected was about equal to the old entry fee, but the showing was far superior and gave better satisfaction, and the attendance during the last days of the fair was correspondingly increased.

HORSES.

The showing in horses was magnificent, being 136 entries, showing some of the finest specimens of the equine race ever exhibited in Northeastern Indiana, of which the Norman and Clydesdale predominate—a cross between the two being found the most desirable and best adapted for general purposes and farm work, while a cross between the Magna Charta and Hambletonian is generally considered the best for speed, light harness and roadsters.

SPEED.

The speed department was well represented by a number of the best "steppers" in the State, resulting in several very closely contested and exciting races that gave general satisfaction, the usual horse dialect of "home-stretch," "whacks," "scores,"

"send-offs," "flags," "pulls," "wires," and "breaks" being "sandwiched" in at proper intervals to show that the speaker understood his business; and that "Blind Tom," or "Sleepy George" was an "old duffer" compared to the particular horse that he was then handling. A horse race will always draw a crowd—please don't let that escape your memory.

MULES.

But few mules were on exhibition. Those, however, were "good" ones, though, in my opinion, "good" mules are like Josh Billings's "good Indians"—"all die young." The mule is not a favorite with our people, and whether it was on account of a failure to have a proper record made of his progenitor at the time "Uncle Noah" was "loading up," we are unable to say, and refer the whole matter to Secretary Lou. Link, of Rush county, who can speak for himself.

CATTLE.

There were forty-one entries in the Cattle Department, several beautiful herds of Short Horns being on the ground, their shiny, glossy coats showing good treatment and the interest manifested in this branch of farm husbandry; the beautiful symmetry of their limbs and the contour of their bodies establishing the fact that "blood will tell," and that the coming beef cattle of the future is the Short Horn. Several fine herds of "Jerseys" were also on exhibition. The Jerseys are a new feature with our farmers, being considerably smaller than the Short Horn, present a very neat appearance and a docility of action that is desirable for family use. They are recommended for their superior milking qualities, a proposition that is warmly contested by the owners of the Short Horns, and just which one is the most preferable, and why, I will tell you in my next report.

SHEEP.

The principal farm industry of our people in the near future is bound to be sheep culture. There were fifty-nine entries for competition at our fair, showing a number of varieties that in themselves were models of perfection, from the short, fine woolled Merino and South Down to the long, and coarser woolled Cotswold and Leicester. The pure blooded Merino, we find from experience, is not adapted to our low, black soil, the hoof growing crooked in spite of every effort at trimming, and the prevalence of foot disease. We find that it will not do to cross the Merino and South Down, for the reason that we gain nothing in size, and it gives us still a worse case of closely matted wool that is very difficult to shear and handle successfully. The Cotswolds and Leicesters thrive very well, but the best and most profitable sheep with us is a cross between the short woolled Merinos or South Downs with the hardy, long woolled Cotswolds or Leicesters, thus giving us a desirable medium, both as to size and texture, and an article of wool that always finds a ready sale at the very best market price. Sheep are the least expensive, will live on less pasture, less water, less feed, cause less trouble, and produce more wool, than any other animal on the farm. Sheep culture, if properly treated, will yield an annual profit of at least 200 per cent., and a farmer who is not satisfied with that kind of an investment should take Horace Greeley's advice and "go west."

SWINE.

There were forty-eight entries of hogs, many of them large, fine, massive looking animals, that could not fail to attract the attention and command the admiration even of our Hebrew brethren. There were Berkshires, Chester Whites, Jersey Reds, and Polands *in extensa*. The Jersey Reds we regard with the same admiration that we do the mule. But the Poland China is the hog, is well formed, well adapted to our soil and climate, is strong, vigorous and healthy; has an excellent constitution, a frank, open countenance, will fatten readily at any age, and is our favorite.

POULTRY.

The Poultry Department was well represented by 120 entries, of all varieties and classes, from every part of the county and from adjoining counties. Some beautiful specimens were on exhibition, the Plymouth Rock, however, being the favorite on account of its fine appearance—being more than an average layer, is of good size and a very reliable setter. The meat is very tender and of an excellent flavor for table use.

GRAINS.

There was an abundance of farm products on exhibition, consisting of wheat, oats, rye, barley, apples, potatoes, and fruits and vegetables of all kinds, of an excellent quality, showing the thrift and industry of our farmers, and the very commendable zeal manifested in assisting to build up our fair. Our crops were more than an average yield for the season, both in quantity and quality. The large prairies, opened up in the northeastern and northwestern portions of the county, produced hundreds of cars of potatoes of an excellent quality, in some instances running up as high as 625 bushels per acre of actual measurement. The production of onions, on what we call "black muck," was almost as prolific as potatoes.

FLORAL HALL.

Our Floral Hall is a beautiful building, with a large dome arising in the center, having four large double doors and eight large windows. In the center of the room, and immediately beneath the dome, was built a large pyramid of greenhouse flowers and living plants, to the height of twenty feet, while the walls and large tables were literally covered with ladies' ornamental needle work, paintings, fine arts, and textile fabrics, interspersed with a number of beautiful cages of canary and mocking birds, whose continual singing lent an air of joyousness to the occasion that is seldom experienced, and we were not surprised to hear an aged citizen at our elbow remark, "it beats the world."

GRASSES.

But little attention has been devoted, heretofore, to the cultivation of grasses; but as good stock was being introduced, the question of food for them has enlisted the most earnest attention and careful investigation. Red clover having been used the most extensively in the past, has been found to be an excellent pasture for young cattle, but in order to produce good beef, we find it necessary to use grain for

feeding in addition. The case, however, is different where the much-abused white clover is used, no grain being required. And the same may be said, perhaps, of orchard grass and Kentucky blue grass. The orchard grass, however, while growing luxuriantly, and producing a strong, rich pasturage, is somewhat objectionable from the fact that it grows in bunches, and does not form a perfect sod. Especially is this the case on upland. The blue grass has all the good qualities of the orchard grass, and is free from all of the objections named, meets all of the requirements for fall and winter pasturage, for all kinds of stock, and will soon supercede all other grasses with our farmers.

DRAINAGE.

Tile drainage has become almost the order of the day, while free gravel roads are being rapidly constructed all over the county, a splendid article of gravel being found convenient, and an abundance of good building stone easily obtained at our Salamonis quarries.

FENCES.

The old "worm rail fence" that has "stood guard" for us for more than half a century, is rapidly giving away to the osage orange and the barbed wire, while

"The old oaken bucket
And the sweep that stood nigh it,"

Is revered only in song, and the wind pump, with its tireless arm, has become an actual living, whirling reality of the present. All of this proves the truth of that old homely adage that "every dog has his day." And while, with many pleasant recollections of the past, we accept the present, we feel like saying, in the language of the old song,

"Let the dead and the beautiful rest."

Our total receipts were	\$1,451 52
Total disbursements	1,302 49
Balance cash	149 03
Total indebtedness	642 00
Debt, less cash on hand	492 97

Our "latch string" will again be found on the outside in September, and if you will "pick up" your wife and babies and "come and see us" we will "show you around."

Respectfully,

JOHN NONAN, Secretary.

CASS COUNTY.

The tenth annual fair of the Cass County Agricultural Association was held at their fair grounds September 19 to 23, 1882, and was in most respects a success. The exhibition was good in all the departments, the entries exceeding any former year; the attendance was fair, but not as large as should have been to make the fair a financial success.

In relation to the condition of agriculture, etc., in Cass county, it may be said that all the crops of last year were fully up to the average, and the quality was good.

The system of tile drainage which was commenced several years ago has been gradually increased, and last year more tile was put in than in any former year, and the good effect of the same is to be seen in all parts of the county; and there is plenty of land in Cass county, which a few years ago was worthless for all purposes except pasturage in a dry season, that is now susceptible of cultivation for all crops, and produces equal to any other lands, completely demonstrating the fact that drainage pays.

In addition to tile drainage there has been a large amount of ditching done throughout the county, which, of course, has produced corresponding benefits.

During the last year three new turnpike roads have been started and partly built, and will be completed during the coming year, which will be of great benefit; and from present appearances it will be but a few years until all the leading roads in the county will be graveled, and thus made fit to travel at all seasons of the year.

It can be said of our farmers that as a general thing they keep themselves well posted upon all matters pertaining to farming, and that they use the latest and most improved farm machinery, of all kinds, used for the purpose of putting out, and taking off and taking care of crops.

Taking everything into consideration, Cass county is fully up to the surrounding counties in all things pertaining to agriculture, and it is believed will compare favorably with any county in the State that has been organized since 1829, the date of the organization of Cass county.

Respectfully submitted,

D. W. TOMLINSON, Secretary.

CLARK COUNTY.

The twenty-fourth annual fair was held on the grounds of the association, at Charlestown, on the 12th, 13th, 14th and 15th days of September, 1882. The fair grounds contain sixteen acres of land, and are owned in fee-simple by the association.

Property owned by the association consists of the grounds, valued at \$800, and improvements valued at \$2,000, making a total of \$2,800. The first fair was held in this county in 1853, so that in age it ranks among the earliest in the State.

This county is not favorably located for holding a successful fair, mainly on account of its near proximity to the city of Louisville, Ky., where there is usually a fair or exposition in progress at or near the time of our fairs, which tends to diminish our attendance. However, attendance was rather better this year than is common. Good order prevailed during the entire time of the exhibition, and visitors seemed satisfied. There were no intoxicating liquors allowed to be sold on the ground, and "wheels of fortune" and all other gambling devices were excluded. In this respect we have greatly improved over many former years.

From the tables annexed may be learned what branches of farming get the most encouragement. For instance, two "fast" horses take nearly 20 per cent. of the whole cash premium, and the horses of the different classes took more than 70 per cent. of all premiums paid. Other things got but small amounts. The stock of all kinds was of good quality, and well worthy of premiums. The same is true of all articles on exhibition, but there seemed to be a want of competition in most classes.

We can say of fruit, that the specimens were of superior quality, but the lateness in the season of the time of holding fairs prevents a very great display, for our fruits are mostly of summer varieties, and are gone before "fair" time. The leading kind of fruit grown in this county is peaches, of which we probably raise more for market than any other county in the State.

The farming in this county is evenly divided between grain growing and grazing. In the cultivation of our lands, a system of rotation is followed. First clover, or what is better, clover and orchard grass mixed. Then corn, followed by wheat, then clover and orchard grass again.

For grazing purposes, orchard grass and blue grass are mostly relied upon. Orchard grass is very much in favor with our farmers on account of its hardness and quick growth. For sowing with clover, it has no equal. Sow one gallon of clover and one of orchard grass, per acre. For a permanent pasture of orchard grass, sow double the above amount, alone.

Early potatoes were a good crop this year, and those on exhibition were of unusually fine quality. The productiveness of our best farming lands has been increased in the last ten years by the better methods and more thorough cultivation now practiced by our farmers.

Our horses are mostly of the class known as "general purpose," and of fair quality.

We have a fair supply of Jerseys, which are acknowledged to be the best for butter. Shorthorns are relied upon for beef. The Holstein cattle are meeting with much favor here as dairy and beef cattle.

The improvement in buildings, both residences and barns, has been very marked in the last few years.

The heavy timber which covered this county at the time of its early settlement is fast disappearing, and there is no attempt being made to replace it.

Most of our fences are of rails, and will soon have to be replaced with other material. We have a great many miles of stone fence, but its cost is much against it, being from \$4.50 to \$8 per rod. Wire fence is being tried, but there seems to be great fear lest stock may be injured by it. There is not much said as to fencing stock "in or out," as what each farmer does to keep his own stock in, usually keeps his neighbor's out. But in the near future we will certainly have to do something to get along with less fence than we now have.

The ravages of dogs have greatly interfered with the raising of sheep. In most of the townships in this county the present dog law is working well, but in some they can not get a constable or anybody to kill the unlicensed dogs, so that it is likely that in such townships there will not be any dogs licensed next year.

Not much attention given to statistics by our farmers. They seem wholly occu-

pied with their farm work, and trying to raise money to pay their taxes, which they think burthensome, and do not seem to be trying to learn why taxes are so high, and how to lessen them.

But little land drained in this county, but such as has been drained has more than been doubled in productiveness. There is not a tile factory in the county, and the high price of tile prevents many from trying it.

Our roads are mostly of the ungraded clay sort, though we have some turn-pikes. The manner of working roads here is to build culverts where needed, using stone when it can be had, and then grading or throwing up the road bed, so as to get drainage.

The present road law is causing general complaint among our farmers. It increases taxation, and does not improve the roads. That the law ought to be repealed is nearly the unanimous voice of our farmers. The farmers have the time and implements necessary for working the roads, and can do it cheaper by far than it can be done any other way. Besides they are evenly distributed along the highways, and near to where the work is to be done, and can and ought to do the work, and do it well. Roads are, in some sense, the property of the neighborhood in which they lay, and farmers ought to see to it that they are made good. The farmer that won't work a road right at his door, will not willingly pay a tax to work one miles away.

JAMES CARR, President.

CLAY COUNTY.

The Clay County Fair Association gave its annual exhibition for 1882, on its grounds near Brazil, beginning September 4 and ending September 9, 1882.

It was successful. More entries were made than at the previous fair, especially by our own citizens. "Improvement and Advancement toward Perfection," seems to be the motto of all our industrial classes.

Agriculture is receiving the attention it deserves, more improved farming implements having been sold the past year than ever before, including a large number of self-binders. Wheat and corn are the grains best adapted to our county. Eel River Bottom is one of the best corn regions in our State. All grasses are successfully cultivated. Apples and cider are getting plenty in this county.

Farmers are building every year numerous and substantial houses and barns. A very large number were erected during the last year.

Our roads are being improved as fast as possible, and soon will compare very well with those of some of our more pretentious counties.

Our streams are spanned by numerous iron and wooden bridges of the latest and best designs.

Wire fences can now be seen in nearly every community in the county, giving general satisfaction.

Our farmers are yet considerably divided on the question of fencing stock "in or out."

Our Association is in good condition. All premiums were paid in full. The Society is out of debt; has money on hand; pays dividends to those owning its stock, and is striving hard to make each succeeding fair better than the preceding one.

At our last meeting all our officers were re-elected.

Respectfully submitted,

E. C. KILMER, Secretary.

CLINTON COUNTY.

The Clinton County Agricultural Fair was held at Frankfort, commencing August 28 and closing September 1. It commenced raining on the Sunday previous and rained every day of our fair except Friday. Notwithstanding the rain and mud, our fair was considered a success; while the entries were not as large as at previous years, the stock and articles far excelled those of previous years, the Floral Hall being very fine. The races were good each day, and closely contested. On account of the early date of the fair, some of the products of the county were not ready for exhibition. Our fair grounds are located but half a mile from the public square. The Chicago & Indianapolis Air Line Railroad runs across one corner of the grounds, which will make it convenient, hereafter, for transportation of both stock and passengers.

JAMES McDAVIS, President.

JOHN BAYLESS, JR., Secretary.

DEARBORN COUNTY.

I inclose a brief report of the last fair given by the Lawrenceburg Agricultural Association, and regret that, owing to circumstances, I am unable to send you a more detailed statement of our fair. Our association is young, scarcely four years old (having given three fairs); but the child is promising, and if we have good luck, will develop into a giant affair. The past has been very unlucky in some respects. Fire has twice destroyed forty-eight box stalls and a barn. The first time the loss was \$1,800, but the second time, luckily, we were insured for \$1,200, about two-thirds of the damage sustained. In the winter of 1882 the Miami and Ohio rivers broke over their banks and went rushing through the fair grounds at a lively rate, carrying desolation in their wake and playing sad havoc with the grounds generally. The association was damaged fully \$1,000 by this catastrophe. Notwithstanding these discouragements, the Directors went to work, built new box stalls and barn, a large and fine Art Hall, costing \$2,000, and made other improvements. The success of the fair of 1882 was phenomenal. It rained every day during the fair, and by looking at the gate receipts you find that the attendance was astonishingly large.

Our fair grounds are unsurpassed by any in the State. We have a magnificent half-mile track, and a covered grand stand with a seating capacity of 2,500. All

of the buildings are new, and the grounds, beautifully situated, are complete in every appointment. The city government has treated us very liberally in regard to donations, and the merchants reap the benefits during fair week.

The association has never derived any benefits from the license fund, although it is incorporated in pursuance of the provisions of the act of February 20, 1867. Can you inform me what course will be necessary to pursue in order to get our share of the fund mentioned? I will try and be present at the meeting to be held on the 2d of January, 1883.

Yours respectfully,

W. H. O'BRIEN.

DECATUR COUNTY.

The undersigned, on behalf of the Agricultural Society of Decatur county, submits the following report of the conditions of agriculture in this county, as required by law:

This society was organized September 13, 1852, and of its officers at that time but one remains, our retiring President, William W. Hamilton, having been Vice President at the organization, while James Morgan, President, B. H. Harney, Treasurer, and Davies Batterton, Secretary, have passed beyond "the smiling and weeping." Of the first directory, Seth Lowe, R. C. Foster, Moses Rutherford, John Hillis and James Moody have died, and James B. Foley and Charles Miller alone remain as monuments of this work in its early infancy. The receipts of the first fair were about \$325, and \$128 remained in the treasury after the payment of premiums and expenses. The society then owned two acres of ground. Now our society has forty-five acres of ground, enclosed by a substantial fence mounted with barbed wire, and has this year constructed one of the best half-mile tracks in the State. It has erected about 100 new stalls, and has put up a nice and convenient dwelling upon its grounds as a residence for the custodian thereof. It has through an amphitheater company erected an elegant amphitheater, and has expended about \$7,000 in improvements, and paid out about \$3,000 in premiums and expenses of the last fair.

The thirty-first annual fair was held from August 22 to August 25, inclusive, and although somewhat interfered with by heavy rains, was a success in the show of live stock, and had a fair attendance.

We claim for our county a good stock of horses and a fair proportion of those that enter the speed rings of the State. The rearing of mules and aggregating them for other markets has been equal to other counties for some time, and we now think we exceed our neighbors in this particular.

Our people do much toward feeding and marketing cattle, and this interest has been so cherished that portions of our county make it a specialty. The President of the C., L., St. L. & C. R. Co. has for some time given a special premium to the best short-horn bull and herd of cattle until this feature has become a permanent one, we hope, in our fairs.

In the hog and sheep department we need not say to any one who has attended the fairs in Southeastern Indiana lately that we excel in this kind of live stock.

Our fair was held early and there was, as a consequence, no opportunity to display farm products, still we claim that our farms are further advanced in the matter of drainage than those of other surrounding counties, and we do not, therefore, suffer as they do, either from excessive rain or excessive drought. Our people engage in diversified farming, and do not rely upon any one product as a staple, and for this reason we always have something for the market.

The quarries of our county afford daily employment to hundreds of men, and yield as much money as the products of hundreds of farms. St. Paul, Harris City, Westport and Newpoint all contribute to this comparatively new industry with us.

Respectfully submitted,

CORTEZ EWING, Secretary.

DELAWARE COUNTY.

In compliance with the statute requiring annual reports from each society, the following report for and on behalf of Delaware County Joint Stock Agricultural and Mechanical Society, is submitted:

The thirtieth annual exhibition of this association was held on the society's fair grounds, adjoining the city of Muncie, on the 12th day of August, and continued for four days. The exhibition was very fine in all except the Cattle Department.

Each Director took hold of his department with zeal and energy, and everything moved off harmoniously.

The Horse Department was well filled, and probably the best display that has been since the organization of the society.

The Cattle Department was not so well filled as in former years, although there were some good cattle on exhibition which would be a credit to any society.

The sheep pens were all full of the best in the county.

The hogs were simply immense in number, and some of the finest in the State.

Floral Hall was full of the finest fabrics that could be made by women. There is no room for comment on the articles, for they were all as fine as could be made.

The agricultural implements on exhibition were too numerous to try to itemize. Seven different kinds of self-binders, and seven different kinds of mowers, all running by steam at one time, was a show within itself, besides corn shellers, sickle grinders, grind stones, cider mills, and a host of other things in motion. What a grand improvement in the last few years.

Speed was good each day, which attracted large crowds to witness the races.

The carriage men made a splendid show of carriages, buggies, sleighs, and everything in their line of business. It was one of the largest shows of the kind ever witnessed on the ground.

Our fair was a financial success, our receipts being ample to pay all premiums in full, with a small balance on hand.

As to the crops for the year 1882:

Wheat good; estimated to average, in the county, sixteen bushels.

Corn very good, and stock scarce to eat it. The result will be that a great amount of it will be shipped to other points.

Hay, big crop cut, but not so well cured on account of so much rain in harvest.

Potatoes, a large crop raised.

Oats not good; rust hurt them.

The condition of the roads in our county is good. There are numerous pikes—about 150 miles in the county. Most of them are toll roads. Some in the northern part of the county are free pikes.

The farmers are greatly improving their farms by ditching and making good fences, such as plank, wire and hedge.

The farmers have taken great interest in good stock raising here of late.

J. M. GRAHAM, President.

ELKHART COUNTY.

For the twenty-fourth time our society held its annual fair, and for the corresponding number of times we now make our report of the doings of this county auxiliary to our honored head, the State Board, to show that we have done our part in the encouragement and promotion of agriculture, in promulgating the best methods of tilling and draining, in properly testing inventions to economize labor, in comparing the merits of the various products of the soil, and in stimulating by competition a general improvement in all that pertains to the farm.

The date chosen was not in the time of year when fair weather can be most expected, but a week that we could profit by the observations of those of our people who would come home fresh from the lessons of our State Fair, and that we might get the benefit of exhibitions at certain nearer fairs of importance. Our expectations were realized in every way, and we could have hoped for nothing better except the weather. Entries were considerably delayed by hard rain half of the first day, and an unpromising morning kept away many from a distance the second day. The third day, weather permitting, the people did come in numbers as never before. Rain all the fourth and last day made carrying out the programme and having any crowd to witness it seem an impossibility, until 2 o'clock, when the sun pierced the breaking clouds and, as by magic, a large number of people came to enjoy the closing events of the fair, the fast races. Although thus hindered, and having really but a one-day fair, the money receipts exceeded any fair in the history of the association, indicating that if clear days had given the opportunity, the proceeds would have been unprecedented for a county fair having nothing but legitimate fair attractions.

Animated by the erection this year of the best exhibition hall in this region, the displays in this department were excellent. Although not properly an index of the agricultural wealth of the county, the show of vegetables, cereals and fruits was better and more extensive than we ever had. But the idea is prevalent among many of our farmers that unless they have some live stock of merit that they have

nothing to bring to a fair. The implements, machinery in motion, products of wood manufacture, and the array of vehicles displayed, made a mechanical department that would have shown to no disadvantage in a fair of far greater pretensions. Brahmas, Cochins, Houdans, Leghorns, Games and Bantams fowls, and Bronze turkeys and Toulouse geese filled the usual poultry space; while our pens contained Poland Chinas, Berkshires, and Jersey Reds and Southdowns of merit. The growing popular feature of our fairs, and one most easily worked up, is the horse department, in which this year the horses were about equally divided between fair representatives of the Norman and Clydesdale in the draught class, and the various strains in the general purpose and the lighter classes. We made a new class for standard bred horses now coming to notice here.

With the display in the above departments, the managers felt more than ever before that they had something to invite the public to, if the weather had been equally as favorable.

We recognize that racing is not closely allied to agriculture; but the managers of our fairs, after experimenting in this direction and noticing the results on other fairs, have concluded that the people must have exciting entertainment, and that nothing pleases so well as trials of speed, and since they want running and trotting, it has been the aim of those here in charge to eliminate from such sport as we have all the usual objectionable features, such as betting, pool selling and the like, and stamping out all tendency to jockeying and kindred evils of the race course, and give to our people races which are animated and really contested and not objectionable to anyone.

We have learned that it costs the society no more to offer good sized purses, while it insures good speed to make up an entertainment, instead of the spiritless drag of low priced races. We have also found that such horses as come from a distance are highly valued, and that it pays us to have good accommodations in the way of large shingle roofed box stalls, which will be extended to all horses and cattle, as soon as the society can make the outlay.

Made so by the farmers more than by the soil, our county is distinctively a grain producing region. No lands are better adapted to a diversity of agriculture than ours, but the tendency is to continue in one line. Although there are about equal amounts of wheat and corn raised, a failure in the wheat crop seems to make our farmers feel it the most, for wheat is all sold and is ready money, while corn is mostly fed on the farm and realized from more indirectly. There have never been enough oats raised here for home supply, although the crop pays well certain seasons. In favorable seasons the high lands in the north part of the county furnish small fruits for the city markets. Newly reclaimed lands are adding considerable to the acreage for grazing, which, with the system of rotation of crops and clovering, furnishes the pasture for our live stock.

Recent ditching acts have increased the enterprise in this direction and the work now being done will be more effective than former inexperienced trials. A tile factory here can not supply all the tile now being used in the county.

The lapse of time between the working of the old and the new road law has given no change in the past year to show improvement in our roads.

Our farmers will long continue to fence out stock, for in the rotation of crops every field is sometime wanted as a pasture lot.

Until some different provision is made, sheep raising near towns will be abandoned here. Whole flocks being destroyed in a single night does not encourage the raising of fine bred sheep.

JNO. W. IRWIN, Secretary.

FULTON COUNTY.

Our exhibition; held at the grounds of the Society, near Rochester, Ind., on the 27th, 28th, 29th and 30th days of September, 1882, was by far the largest and best ever held in this county. The first day of the fair was devoted to entries and arrangement of articles for exhibition. The forenoon of the second day was devoted to trotting. In the afternoon His Excellency, Gov. Albert G. Porter, addressed a large and appreciative audience on the grounds. He delivered a very excellent address on the subject of Agriculture.

On the third day the chief feature of entertainment was a band tournament, which was participated in by bands from Peru, Jonesboro and North Manchester. The first premium (\$175), was awarded to the Peru band; the second premium (\$50), being taken by the Jonesboro band. The music furnished by all was excellent. The fourth day was devoted to trotting and pacing and a grand exhibition of all kinds of stock on the track.

The condition of agriculture in this county is gradually improving, and our farmers are now, by a better system of cultivation, raising more bushels of grain per acre than was produced a few years ago. The kind of farming that predominates in this county is grain growing.

The improvement in buildings in both town and country, in the last few years, is quite noticeable, and many of our farmers are erecting substantial and comfortable residences, barns, etc.

There is a large amount of ditching being done in the county under the late law, the Commissioners of Drainage having constructed about sixty-five miles of public ditches or drains within the last year. In addition to this there has been about seventy-five miles of underdraining earthen tile being used. This county being well supplied with timber, there is nothing to report on "timber culture." The kind of fencing used is chiefly plank and wire. A large amount of barbed wire fencing has been put in use within the last year.

A greater interest is being taken in the improvement of roads than formerly, and about seven and a half miles of turnpike were constructed by an organized company during the summer and fall at a cost of \$2,000 per mile. It is expected that more gravel roads will be constructed in the near future, since it is ascertained that good gravel can be found in sufficient quantity.

In my opinion it is better that all stock be kept up and fed upon the grounds of the owners. The running at large of stock, especially swine, is injurious to public highways and ditches. I think the present dog law a good one if strictly enforced.

All of which is respectfully submitted,

SIDNEY R. MOON, Secretary.

GIBSON COUNTY.

Agricultural societies, assisted by this art,
May work together, though they dwell apart.

It becomes my province under the law, as well as my pleasure, to submit the annual report for the year 1882, of the Gibson County Horticultural and Agricultural Society.

Our twenty-eighth annual fair was held on our grounds at Princeton, September 18 to 23, under very favorable circumstances. Such was the interest manifested, however, by the agricultural portion of our county that we can truthfully say that our halls showed vast improvements over former years.

In our Power Halls we had the largest display ever in this end of the State.

Our display of horses, mules, cattle, hogs and sheep, showed vast improvement over former years. A great deal of imported stock was shown.

In our Floral Hall we had the largest and finest display of textile fabrics ever shown in any county, which speaks well for our ladies.

Our farmers are beginning to learn what we have all so long known, that theirs are the herculean shoulders upon which the world rests. Bearing such a burden, they are beginning to bear it bravely, and with pride. They now know that it does not take a fool, but a smart man, to be a farmer, and with due credit to them, I must say we have one of the finest agricultural counties in the State. A generous rivalry, long since aroused among the farmers, has caused a great improvement, both in the condition of the farms and the method employed for their maintenance. The well conducted farm of to-day, with the owner's comfortable residence, ample, well-stored barns, and fortified upon all sides by sturdy acres, presents a very attractive picture of rural life.

The raising of grain predominates in this county, wheat and corn being the principal crop, though grazing is carried on to a large extent.

The old-fashioned worm fence of "ye olden times" is gradually giving way, and wire taking its place, and it will soon be as it were with the song of the old oaken bucket, and made to ring in the school house—the zigzag fence of our forefathers' days.

The important subject of drainage is receiving careful attention, and where used great benefit is derived.

The dog law of to-day is considered by our farmers good enough. The dog is a relic of barbaric times, though a babe would keep the farmer awake as well, and is of more importance to our country.

The past year we have added many fine improvements on our fair ground. One was the building of a large dwelling house to be used by a tenant to look after our property, which, we are proud to say, is excelled by none, and now we have thirty-six acres of dense forest which any society should be proud to meet under, and well may we be proud of old Gibson, the banner wheat county of the State.

Brothers of agricultural societies, we hail you a hearty welcome. To see is to believe.

Financially, our fair was a success. Our receipts were large, notwithstanding the rain on the second and third days. The amount received for privileges sold was larger than ever. Our society is out of debt and \$763 in the treasury.

A word personal to our society and I have done. We are out of debt, have good grounds and buildings, money in our treasury, and hope for the future. I trust to report in the coming year a still larger measure of success.

Respectfully,

S. VET. STRAIN, Secretary.

GRANT COUNTY.

The Grant County Agricultural Society held its thirtieth annual fair on their grounds, on the 5th, 6th, 7th and 8th of September. The exhibition was probably the best ever held in the county. Every department was well filled, especially that of horses and sheep; and what was most surprising, almost every exhibitor was satisfied with the awards made by the different committees. Another prosperous year will find us out of debt, and able to make such additional improvements as the more tasty desire. Heretofore we have adopted the motto, "Business before Pleasure," and simply made such improvements as our necessities demanded. The Society owns, in fee simple, thirty-five acres of land, half a mile east of Marion, on the Marion and Eastern Gravel Road. There is running water on two sides of it, and several excellent springs. We have an ample supply of stalls for horses and cattle; also covered sheep and hog pens. We have an amphitheater large enough to meet the wants of our people, and Agricultural and Floral Halls of ample dimensions.

Our farmers have taken advantage of our excellent ditch law, and to-day nearly every farm in the county has a good outlet for tile ditches.

Our farmers are raising a great deal of clover for pasture, and also as a fertilizer. From the benefit derived from good drainage and the clover, our farmers are raising large crops of all kinds of grain each year.

As an agricultural county, Grant ranks with the first in the State. Marion, the county seat, is situated very nearly in the center of the county, on the banks of the Mississinewa river, a stream that has at least three feet fall to the mile from head to mouth, furnishing abundant power for all the mills the county demands. It has a population of between 4,500 and 5,000, and improving very rapidly. We have just finished, at an expense of about \$200,000, the finest court house in the State, outside of Indianapolis.

D. S. HOGIN, Secretary.

GREENE COUNTY.

Greene county is divided by the west fork of White river in nearly two equal parts; the east half is broken and hilly, well supplied with excellent poplar and oak timber, with some fine wheat lands on the ridges, and rich bottom lands producing heavy yields of corn; nearly all of it good blue grass land for pasturage.

Sandstone and limestone of superior quality, and iron ores are found on a considerable portion of this territory.

The west half of the county is rolling timber and prairie land, sloping gradually toward the south into flat, marshy land, receiving the waters of the different creeks in their descent toward White river. All kinds of grain and grass produce good returns, except on the unreclaimed marshes. Large beds of stonecoal underlay the west portion of this part through its whole length, from north to south, awaiting better railroad facilities to transport them to market.

The products of the farm find a market along the Indianapolis & Vincennes Railroad, which traverses the county from northeast to southwest, on the west side of White river, and the Bedford, Springville, Owensburg & Bloomfield Railroad running east and west.

Wheat, corn and hay form at present the three leading crops of the farm. Of stock, cattle are largely grazed and fed for market, the graded steer superseding the old native. The number of cattle is yearly increasing, since hog diseases and failure of corn crops have made returns in pork doubtful, and often prove a total loss.

Great improvement has been made in sheep by crossing with Cotawold and Southdown bucks, and we have some fine, small flocks of these breeds, but there is less attention paid to this branch of stock raising than would be if we could protect ourselves against losses by dogs.

By the use of imported Clydesdale and Percheron stallions we can show quite a number of grades that will do to show anywhere.

Our hogs, if not as numerous as formerly, make up in quality for loss in numbers. Poland China and Berkshires and their crosses are the favorites.

Under the new ditching law several large tracts of land have been, and are now being reclaimed, while surveys have been made for others that will be given in contract the coming year. As ditching progresses, underdraining by tile proceeds. Two tile factories, now in operation, are unable to supply the demand, and two more will be opened the coming year. Land thus underdrained, a few years ago worthless, or, at best, very unprofitable for grain raising, has proven, the last two years, in extreme dry and wet seasons, the most reliable, returning such crops as the most sanguine never dreamed of seeing. Such lands now rent for five dollars an acre, *cash*, very readily, when good upland can be had for two dollars, or, at most, two and a half dollars. Thousands of acres will be reclaimed in the next few years and brought under successful cultivation, promising the greatest yield where heretofore not a bushel of grain was produced.

Such lands necessarily lack material for road building. During wet weather, late in fall and spring, also in winter, if not frozen up, our roads are almost impassable, which often proves a great loss to our farmers when a sudden rise in value of grain, prevents them rushing the surplus to market, on account of the condition of the roads. Where clay is the only material available for road making, the running at large of stock is the greatest drawback on improving roads by its tramping down the edges of ditches, filling them up, obstructing the water, rooting up the roadway and similar causes. I consider the damage to the public, in this respect alone, greater than the cost of fencing the stock up, and am decidedly in favor, and with me every intelligent farmer, of a law compelling every person to take care of his

-own stock. Those pleading for the poor widow will find it cheaper to furnish pasture for her cow than to fence all their lands against the stock of those that are not poor widows.

The past year, as a whole, has been favorable for farmers. Although considerable corn was drowned out early in the season by floods and excessive wet weather, the crop is far greater than was expected, owing to the fine weather in the latter part of summer and the long, favorable fall, retarding frost until our late corn hardened. Our wheat crop has been good, both in quality and yield. The growing crop at the present time is not equal to the fall of 1881. The fly has been more or less over the county, and some of the earliest sown fields had to be resown, which is consequently small. Oats, though light in weight, yielded well in bushels and have been of great help to our horses at a time when the county was cleaner of grain, of all kinds, than ever before known. Our hay crop was excellent in every respect, and with good straw, a great supply of rough feed is on hand. Potatoes and other garden products yielded a full return, and fruit of all kinds, peaches excepted, have been plenty, so our farmers are left in very fair condition, feeling encouraged for the coming year. The good attendance and cheerful faces at our fair, which was held October 2 to 7, showed that very plainly, and it has proven one of the best and most successful exhibits ever held on the society's ground. The society promised to pay the premiums awarded in full, and has done so, and will rather offer smaller premiums than ever return to the *pro rata* business again.

The exhibit in the horse and agricultural departments was full and of the best kind, and is not often excelled in quality at a county fair.

In cattle the entries were fewer in number than the Board had good reason to look for, but the hot and dry weather during our fair caused some of our most regular attendants to withdraw on this account, their stock being very fat. What was shown, however, was good.

Hogs and sheep were also, in number, below general attendance, for reason well known to the Board, namely, want of covered pens. Arrangements are already made to erect the necessary building and have it ready for the fair of 1883.

The show in home-made miscellaneous articles and textile fabrics was well represented, and the visitors and exhibitors went home satisfied, no gambling or other obnoxious conduct marring the good feeling prevailing during the fair.

With fair crops, the next fair promises to excel our last one. The Board will do, on their part, everything to make it a success.

PETER SCHULTZE, Secretary.

HAMILTON COUNTY.

Hamilton Agricultural and Fair Association held their fourth annual exhibition on their grounds, one half mile west of Noblesville, Ind., Aug. 28 to Sept. 1, 1882. The exhibition was a success financially, and our show was good. We paid all our premiums in full, also our expenses, debts, and made one hundred and fifty dollars improvements, and have a balance in our treasury. We had a very extraordinary horse exhibition; cattle, hogs and sheep, a fair showing; poultry, small on

account of disease; fine arts, farm and garden product, a splendid exhibition; farm implements, good. We have, in course of construction and completed, eighty-five miles of free pikes, costing ninety-eight thousand dollars. There has been constructed twenty-two miles of railroad this year (the Chicago Air Line).

Ditches have been constructed, or are under way to drain all the wet land.

Our crops of corn, wheat and hay was good; fruit, a failure, except small fruit, of which we had plenty. Oats, potatoes and cabbage, a moderate crop.

We have wire, hedge, plank, patent and rail fence. The latter predominates, while the wire is the cheapest. The dog law is the best we ever had.

We practice all kinds of stock raising. Horses, mules, cattle, hogs, sheep and a large amount of poultry find a ready market at our doors.

Our county is very prosperous, as evidence, new houses, barns, fences, ditches, gravel roads, etc., all go to show that good crops, fair prices, plenty of work and good wages, make all contented and happy.

W. C. VANCE, Secretary.

HARRISON COUNTY.

Harrison county is one of the extreme southern counties in the State of Indiana, bordering some fifty miles on the Ohio river, giving a cheap outlet for her products for many miles in the interior. The central part of the county from Corydon to Louisville has a good turnpike road opening up the best portion of the county to the Louisville, New Albany and Jeffersonville markets. The northern part of the county has the Louisville, Evansville & St. Louis Air Line Railroad running east and west, with three stations along the line in the county, giving us access to the eastern and western markets for our varied farm products. The county has the advantage of several important water courses running east and west, north and south, such as the three Buck creeks and the two Indian creeks, with a number of good merchant flour mills, saw mills, etc., furnishing abundance of power, sometimes the year around. Also Blue river, running north and south along our western border, furnishing in time of high waters an outlet for rafts of lumber and logs to the Ohio river, on which are now situated several flouring mills, some of the owners of which are now paying Louisville prices for wheat. The county contains three hundred thousand acres of land, mostly upland; a considerable portion of it rather broken and peculiarly adapted to fruit growing, an industry that is increasing very rapidly every year. The statistics of the State now show that there are but two counties in the State that have a greater number of acres of land planted to orchards than Harrison county, their being now some seven hundred acres planted to orchards, on which there was an abundant crop this last season of apples and peaches, especially that of the peach. Thousands of bushels went to waste for the want of help in picking and marketing. Some of our enterprising orchardists realized more from a few acres of orchards than was realized on some of our best farms.

The farmers of this county are making great improvement in the cultivation of their farms. The average products have increased over fifty per cent. in the last four or five years.

The statistics of the county show that there was sown to wheat in the fall of 1881, 28,489 acres, producing 340,868 bushels of extra quality. There was planted to corn, 34,000 acres, average estimated at twenty-five bushels per acre, making 850,000 bushels. There was sown to oats, 21,349 acres, estimated yield, 320,215 bushels; so that by referring to the statistics it is readily observed how rapidly we have increased in the different farm products.

Mixed husbandry is the leading feature among our farmers, experience having taught them that it is not safe to depend on any one particular industry.

The old worm fence, and the idea that we must continue to fence stock out instead of in, still prevails to an alarming extent, and will continue as long as there seems to be an abundance of timber to use for that purpose.

The roads of our county are in a desperate condition, on account of the complete failure of the present road law. It may accomplish the object in more wealthy counties, and where they have a more level surface, but will never make good roads here. The people have no objection to being taxed for the purpose of having good roads, if it will only accomplish the object.

The farmers are taking more agricultural papers than ever before, but many continue to be penny wise and pound foolish.

I consider the annual statistics of the State of very great importance to the agriculturists of the State, if they would only read and study them, especially if the officers of the counties would take the pains to have them correct; but from the discrepancies that I have observed, it seems that they are gotten up in a haphazard way, and, therefore, in some particulars, not very reliable. It takes time to perfect any enterprise, and, therefore, we hope it will be better in the future. Officers ought to be compelled by law to make correct returns.

There has been a wonderful improvement in farm houses, barns, stables, etc., in this county in the last few years. Children and stock are better housed than they were in ye ancient days. Fogies say it may be better for the stock, but that the children are less hardy.

The farmers of the county have discovered that rotation in crops is essential in the improvement of their farms. You very rarely see the same field cultivated in corn two seasons, except it be some of the very rich creek or river bottoms, subject to overflow. The rule is now from corn to wheat, and then to timothy or clover. I find the most successful farmers use all their stable and barn-yard manures for corn, as manure does much better for wheat the second year than when applied directly to that crop, as it tends too much to straw. It is much more convenient and profitable to use the pure phosphates and bone meals on wheat, especially if it be used to grow a good crop of wheat and sown to clover for the purpose of turning under a green crop, instead of being raised to mow or pasture. The turning under of green crops must be adopted in this county for the purpose of improving the worn out lands. Any of our impoverished lands can be made to grow a good crop of clover by the liberal use of fertilizers.

The soil of Harrison for upland can not be excelled in the State, as it is mostly the red clay subsoil naturally adapted to hold manure, and our farms have become worn out by outlandish, trifling farming.

Many of our worn out farms have fallen into the hands of working, enterprising men that have been a success in the improvement of their farms without using artificial fertilizers to any great extent.

The twenty-third annual exhibition of the Harrison County Agricultural Society, was held at their grounds near Corydon, on the 5th, 6th, 7th and 8th days of September, 1882.

There was about the average number of entries in the different departments. There was a falling off in the stock department as compared with some other years. This grew out of the fact of our having more of the thorough bred stock, that ruled out our native stock, and made a much better show than formerly.

The exhibition of horses, cattle, sheep and hogs, have improved wonderfully since the beginning of our exhibitions. Persons that took no interest in agricultural societies and that argued that they could see no advantages growing out of them, now admit that they were mistaken. There were two herds of short horn cattle on exhibition from Kentucky, together with several young animals for breeding purposes, nearly all of which were purchased by some of our enterprising farmers, and we predict that in a few years we will compete with any society in the State for fine cattle.

Sheep are coming more and more in favor each year, as they should, as there is a large portion of our county where they could be made profitable.

The exhibition of poultry is still improving, as we had the finest exhibition we have ever had before.

The exhibition of grain was exceedingly good in quantity and quality.

The season was naturally adapted to the growth of vegetables, as was demonstrated by the amount and qualities exhibited.

The exhibition of farm machinery was very creditable, but not what it ought to have been in proportion to the demand of the trade in this county.

The financial condition of the society was a success, as usual, as will be shown by the following exhibit:

Received from all sources	\$3,279 63-
Disbursements.	2,376 70-
Leaving a net surplus in the treasury of	\$902 93-

Most respectfully submitted,

C. S. HUDSON, Secretary.

HENRY COUNTY.

Our last annual fair was held at New Castle, September 19, 22. Notwithstanding the bad weather, the first two days were the best we have had under the new management. The farmers seem to take more interest each year in the improvement of stock of all kinds and in the management and production of their farms, and rapid improvements are being made in all branches of agriculture, grain raising of all kinds taking the lead in this county.

Cattle, horses and hogs are the principal kinds of stock raised for market, and I think we have as fine grades of stock in Henry county as anywhere in the State.

Corn and wheat are the principal crops, and the yield was fully three-fourths of a crop this year, and of good quality. Oats nearly a failure, caused by late rust. Very little flax raised in the county for the last two or three years.

Great improvements in building, especially good barns.

Fences in very good condition, mostly rail, with some wire. Considerable board and some hedge, but the latter seems to be growing into disrepute in the last year or two.

Drain tiling is carried on as fast as the material can be procured; the larger tile, at a depth of three feet, seems to give the best results in all kinds of soil.

Timber is getting scarce, and is being carefully husbanded by the farmers. I would suggest the planting of timber by the farmers.

Our roads are in good condition. Most of the leading roads are toll roads, giving a chance to place the road fund and labor on less important thoroughfares, making them pretty good. We are making no free gravel roads in our county, but are making a great many public ditches. There is not much good feeling for the new road law, and it will perhaps be repealed before it can be properly tried.

We like the present dog law pretty well, except those who never paid dog tax under the old law, but have to come to time now.

The published statistics seem to be in great favor in this county, and seem to be much sought after by farmers. A great many agricultural papers are read in this county.

Truly,

W. W. COTTERAL.

HOWARD COUNTY.

The Howard County Agricultural Association held its annual fair, at Kokomo, September 5 to 9, 1882, inclusive. The fair was a success. The weather was fine. The exhibits in all departments were creditable, and, under the care of an efficient Board of Directors, were very handsomely and tastefully arranged. The idea has become quite prevalent that early fairs are the most successful, and, in keeping with this notion, the time of holding our fairs has been gradually changed from the fall toward the summer season. Our corn crop was quite late this year—at least four weeks later than usual—and this fact, coupled with the early date of our fair, cut the corn exhibit down to a very small show. The show of cereals generally, though small, was quite good. If our farmers generally would adopt the rule of taking something to the fair—the tallest corn, the largest pumpkins, the nicest apples, the best peaches, the sweetest water-melons, and so on to the end of good things grown by farmers—the show in the cereals and horticultural and root crops would be far superior to anything ever yet seen in Howard county. The poorest show in all the departments this year was that of poultry—and such has been the case here for years. Notwithstanding the society has offered very large premiums in this department, still no one seems to take to the poultry show and business with any degree of enthusiasm. The ladies are entitled to great credit for

the hearty assistance rendered during the fair. We see more and more the benefits arising from giving them certain departments to control and manage according to their judgment.

Our county is pre-eminently a wheat and corn county, these grains being very largely produced and shipped. Some people imagine because Howard county is very level—flat—that it will be too wet to produce abundant harvests. That is a mistake. True, the country is flat, and, of course, wet; but by drainage every foot of the land in the county can be rendered tillable, and when once properly drained, there is no better soil anywhere than we possess. Howard county, though one of the youngest, is already acknowledged to be one of the best in the State. The subject of farm drainage, for the last three or five years, has received more attention, perhaps, in this than in any other county of the State. We have twenty-five tile mills in the county, and already there has been buried in the county more than 350,000 rods of tile. We have streams sufficient and large enough to furnish all necessary water-power. We have excellent railroad facilities, having three through lines, and competition gives us cheap freight and passenger rates. We have an elegant court house, and a county out of debt. We are now building a jail and Sheriff's residence, which will be the finest in the State. We have as good timber as any county in the State, and no better point than Kokomo could be found for a wagon, plow, or mower and reaper manufactory. With such a county as Howard, and such a town as Kokomo, with such a variety and abundance of crops, we predict a bright future for the Howard County Fair. The receipts from the last fair were sufficient to pay all expenses, all salaries, all premiums, in full and leave a handsome balance in the treasury. And thus may it be always.

A. N. GRANT, Secretary.

HUNTINGTON COUNTY.

The fourteenth annual fair of the Huntington County Agricultural Society was held on their beautiful grounds, adjoining the city of Huntington, on September 19, 20, 21, 22, 1882.

Our fair this year, not unlike all other years, was a grand success—a success beyond our expectations. We have become fully convinced that it “rains on the just as well as the unjust,” because it rained on us the three first days of our fair; but we were on hands, and had advertised that we were going to hold a fair that week, and we decided that the “show” must go on, and it did go on, as will be seen by reference to our report of “receipts and disbursements,” that “she” did go on, and that we have money left.

The first day, as usual, was devoted to making entries, and assigning space to exhibits. The second day the exhibition of stock began; and, although the committees worked hard, they did not get through awarding premiums until noon of the last day. Although competition was very strong in this department, there was no dissatisfaction, as far as we could learn. Everybody seemed to be well pleased.

The show of horses of every kind was better than at any previous fair. The

cattle show was also very good, and in short horns, a foreign herd carried off several first premiums, but our own county held the foreigners about level. In the Jersey class we took everything, as usual.

The show of hogs was better than for several years before. The cholera, which has injured this class of industry for several years, has somewhat abated, and our people are recovering their lost ground, and we rarely hear of any complaint from this dread disease.

The sheep were on hands in such numbers that we had to construct new and temporary pens, during the fair, for their accommodation.

The Poultry Department was again full to overflowing.

The Mechanical Department was better than ever before, and a farmer that could not find anything in the line of farm machinery to suit him on the ground, could not be suited at all.

Our large Floral Halls (of which we have two), were again full of everything that goes to fill up those departments, and the ladies did their full share, and seemed to vie, one with another, in making at least this department of the fair a grand success.

Owing to an almost complete failure of the fruit crop, the display in that department was not as good as usual; especially so as to the number of entries.

The Grain and Seed Department was very well represented.

In the way of permanent improvements we built, this year, a music stand and one horse barn of eighteen stalls, which makes 269 stalls on the grounds, and before we hold another fair, will be compelled to build more.

We have done our best, and put forth every effort to make our fair a success, and hope to receive our reward at the appointed time.

CONDITION OF AGRICULTURE.

The agricultural interests of Huntington county are in good shape. The farmers generally are in good circumstances, and paying as they go.

The corn and wheat crops were only an average this year. The dry weather effected the corn, and the wheat was injured by the "fly."

A large number of our farmers are turning their attention to raising and shipping stock. The business of this industry has very largely increased during the past year.

Our new railroad, the Chicago and Atlantic, is now finished, and trains running, and it promises to be the "gilt edge road" of the country, and is quite an addition of wealth to our rapidly growing little city.

That you may know something of our county's wealth, I give you the following statement:

Total value of lands, lots and improvements in the county, as returned

for taxation for the year 1881	\$5,214,870 00
Personal property	1,916,085 00
Telegraph property	4,045 00
Railroad property	412,919 00
Making a total of	\$7,547,919 00

Which is safe to say is worth fully \$15,000,000, and the natural increase of realty will equal fully 5 % for 1882.

H. BAGLEY, Secretary.

JACKSON COUNTY.

Jackson county, named in honor of General Jackson, organized in 1815, is situated in the third tier of counties, on the southern boundary of the State, and about the center of the State east and west. The Jeffersonville, Madison & Indianapolis Railroad passes through the county, coming in near the southeast corner and going out about six miles west of the northeast corner. Also, the Ohio & Mississippi railway, coming in at the east, about six miles south of the northeast corner, and passing out at the southwest corner, following the high valley of the Driftwood Fork of White river, which runs diagonally through the county, from the northeast to the southwest corner.

As we have, in this county, different kinds of soil, it is hard to tell which class of agriculture predominates. Along White river, in the first bottom, the soil is very rich, and produces corn and wheat in abundance, but the farmers suffered great loss the past season from overflows; then, upon the second bottom and sand hills, we have a sandy soil which produces corn, wheat, rye clover, and is excellent for gardening and growing melons—the latter being the chief product of that kind of soil. The low, flat lands of the Muscatatuck river, in the southern boundary of the county, are well adapted to grazing, and have been greatly improved in the past year.

Upon the high lands, which were once valuable on account of the timber—which is being rapidly worked into staves, spokes and lumber—we can raise anything that can be raised on the bottoms, but will not produce as much per acre, but are better for fruit. Apples do the best. Peach orchards have proved to be a failure in this county, notwithstanding the overflows of White river and other streams.

The farmers of this county have greatly increased crops over 1881. Corn planted here the fourth day of July, has made from thirty to forty bushels per acre of good feeding corn. Many farmers had to cut their wheat before they were through planting corn.

The question of "fencing stock" has been agitated here the past year. The Commissioners, in June, 1882, repealed their order permitting stock to run at large, which caused considerable complaint, and at the September term some of the townships, by a majority of the legal voters, petitioned the Board of Commissioners to make an order permitting stock to run at large, which was done. There is a difference of opinion on that question. Generally the persons owning the large tracts of land, and especially along the river, are in favor of fencing stock in; while those owning small farms, or none at all, are in favor of stock running at large, and the latter class are in the majority in this county.

The statistical reports of the State are looked upon by our people as a great help in bringing to notice the resources of our State. But sufficient care is not taken by the Assessors in gathering the reports; it is made too much a secondary matter.

All the objection we hear to the present dog law is that the "tag" wears out too soon. Some law that would wear out the dogs would be the best.

The seventh annual fair of the Jackson County Agricultural Society was held at the fair grounds at Brownstown on the 22d, 23d, 24th and 25th of August, 1882, and, being earlier than usual, the display of agricultural products was not as large as in the past; but the fair was a success, paying all premiums in full, as we have always done, and paying \$600 on the old indebtedness, which puts the society nearly out of debt.

The show of horses, cattle and sheep was better than the previous year, and the stock exhibited shows that there is marked improvement being made in these three classes.

There is not as much interest taken in hogs as heretofore, caused by the high price of corn and the unhealthy condition of hogs.

The show of poultry was in excess of former years, but not much improvement in quality.

The display of agricultural implements and articles exhibited in the mechanical department was better than previous years, and the interest manifested by the farmers in examining and ascertaining the qualities of the various implements on exhibition shows that we are keeping up with the time in getting the best and latest improved machinery.

The Floral Hall, as heretofore, was managed and arranged by the ladies, and I am glad to say that there were more improvements noticeable in that department than in any other, which confirms the assertion that a fair without the help of the good women is no good.

On Wednesday, the third day of the fair, our society has always admitted free all persons over fifty years old who have resided in the county thirty years. At the last fair, in addition to this, we admitted all persons free who had served in the Federal or Confederate army during the late war, and arranged for a re-union of the soldiers of the county on the fair grounds, which brought an immense crowd, and our gate receipts that day were the largest during the fair, for the reason that every soldier that came had to bring his wife and children; and, in addition to the increased gate receipts, a greater interest in the fair was created, and will be the means, in the future, of making the fair a place of social gathering and a re-union of old friends and comrades.

The greatest and most lasting improvements made in this county during the past year have been in the way of open drainage and tiling. We have constructed, and under process of construction, about ten miles of open ditch, by order of the Board of Commissioners, under acts of 1881, which will reclaim and make valuable a large body of wet land heretofore worthless; there has also been a large amount of tiling done which has given entire satisfaction.

J. H. MATLOCK, Secretary.

JASEPR COUNTY.

The fair of the Jasper County Agricultural Society for 1882, was held on the 12th to the 15th days of September, inclusive. The temperature was mild, there were no wet days, and the weather was all that could have been desired for the purpose.

As the spring had been unfavorable for planting, and the summer unfavorable for harvesting, it was felt that it would be necessary for the society to make concessions more than usual, in order to secure a display worthy of the occasion, and attract a paying attendance of the public. Last year, the customary 10 per cent. charged exhibitors for competing for premiums offered had been removed in certain departments, as was thought with good results. The Board of Directors concluded that the conditions made it advisable to extend this liberality, and accordingly, this fee was abolished in all the departments, save only the speed ring; but it was stipulated that where the premium offered amounted to two dollars or upwards, the successful article should allow a deduction of 10 per cent. of the premium for the benefit of the society. On entries in the speed ring a fee of 10 per cent. of the purse contested for was collected. Heretofore, the policy of the society had been to restrict competition to productions grown or manufactured, and to live stock owned within the limits of adjoining counties. The Board of Directors removed this restriction this season, and unlimited competition was invited. Nothing was gained in the latter direction. There have been better and larger displays of grain, vegetables, economic productions and live stock, and more money was paid into the treasury of the society, even by way of the gate, when the 10 per cent. fee was exacted on exhibited articles, and competition restricted to county limits. The first experiment was decidedly a failure, both in regard to the interest taken by the public and the benefit accruing to the society.

The show of horses was neither as large nor as good as at some of the meetings previously held. Still it may be said to have been creditable. Three or four thoroughbred animals, for breeding, were shown; also two or three Norman stallions, but the grade stock for general purposes numbered most.

Asses and mules did not appear numerous, only one or two entries of mule colts being made in this department.

Of cattle there was better record. But the attraction here chiefly centered upon two or three herds of Short Horn thoroughbreds. They were the best stock of the kind ever seen on the grounds.

There was a better lot of sheep in the pens than has been seen here for many years. Among the rest was a herd of Merinos—curiosities to many, they are so seldom met in this region.

The number of hogs was not so large as at fairs of former years. Still the paucity of numbers was fully compensated by the character of the stock. Points indicative of high breeding were prominent to a remarkable degree. The Berkshires and Poland Chinas would hold their own well in almost any competition.

There was a noticeable deficiency of members in the poultry exhibition. The show might be called a good one for a rural locality; but we have had so much larger ones that the contrast seemed deplorable. It must not be inferred, however,

that there was a failure in this department. On the contrary, the stock showed up well in points of purity and excellence. More than ordinary interest is taken by the people of this region in the inhabitants of their poultry yards, and it is not uncommon to see flocks of fowls boasting as aristocratic pedigrees as any in the land. Individuals have been scored high up in the nineties by Johnson, of Fowler, Ind., and he bears the reputation of being one of the most conscientious judges in the State.

For some cause unknown, the ladies did not display their usual zeal, and as a consequence the Department of Needle Work must be reported less attractive than was wont to be seen in our Floral Hall. They have done well in years past, and, if they will, are capable of better things in the future. They did do commendably well in the culinary display. There was an attraction in the rolls and jars of butter; in the rows of jelly glasses, pickle and fruit and preserve jars; in the loaves and cones of bread and in the display of cake, most delightful to the eyes of an epicure. Those who saw them could not doubt that the people whose hand provided them knew how to do such work well.

Good fruit is grown in Jasper county, and the proof of it was seen in the display of apples, pears, peaches and grapes, and the cans of cherries, blackberries, strawberries, raspberries, gooseberries and currants shown at the fair. Each year marks improvement in our horticultural displays.

Irish potatoes, onions, beans, tomatoes and beets showed up to a good advantage. There were very fine specimens of these and other garden products shown.

The corn, wheat, oats, Hungarian, timothy and clover seeds made a creditable showing.

The floral display was the largest, most varied, and best that has been seen in many a year; possibly the most extensive ever shown in the hall. It would be more encouraging to exhibitors and far more attractive to visitors, if the society could provide better facilities for tasteful arrangement of collections and better protection for plants.

Only a few manufactured articles were brought upon the ground. Agricultural implements of the more common kinds were seen in limited numbers; also, a few wagons and carriages. There were also a few articles shown for diplomas under the miscellaneous list.

It is not thought that the public school work was in as large variety or number as the attainments of the children might produce.

As usual, the speed ring was a source of as much interest to visitors as anything to be seen on the ground. No remarkable records were scored. Experience seems to justify the statement that were horse races abolished from the fair grounds, the directors of agricultural societies would soon be superseded by receivers appointed by the courts to wind up business and pay the claims of creditors.

The receipts at the gate and from the sale of privileges were enough to pay the expenses of the fair, and to pay off the premiums in full; but there was a shortage in this respect last year, and the society finds itself in debt just about that amount—in the neighborhood of \$100. It was voted by the Directors to hold another fair, notwithstanding discouragements, in 1883, on the 11th, 12th, 13th and 14th days of September.

CONDITION OF AGRICULTURE.

The tendency is pointing in the direction of smaller farms, fewer herds of cattle, greater diversity of crops, better drainage, and more careful and thorough tillage. With smaller herds of cattle, a better grade is introduced. Five years have seen individuals inquiring for cows with records for butter and milk qualities, not much sought for heretofore. Fifteen years ago more than half of this county was unfenced commons, and it was then profitable to herd cattle on the ranges. Now three-quarters of the tillable land is partitioned into farms. The "ranges" are now little more than marsh lands and sandy ridges, where vegetation is not generous. As the result of influences actively at work, it will not be many years until there will be more profit in the production of milk and butter than in the production of beef. In my report last year I said that the growing of Indian corn was the industry next in importance to cattle raising in this county. In the statistical report of the State Board of Agriculture for 1881, Jasper county ranks foremost in the average yield of corn per acre, having reached the high figure of 36.4 bushels. The product for 1882 is not likely to show as well; land is not drained thoroughly enough. There was too much rainfall about planting time, and it continued wet all through the month of June. Farmers could not get into their fields to work on account of the superabundance of water. There is some good, sound, well-matured corn this season, but there is much that is inferior—light, chaffy. It has been thought by some who claim to be in a position to understand what they are talking about, that there will not be a surplus to sell, if there is enough to feed the stock at home. There are some farmers, who usually produce more than they consume, who will need to buy. Wheat is not relied upon for a source of revenue. The promise in the early spring for an abundant yield was, to a measurable degree, disappointed by the revelations of the threshing machine; the crop was not a prolific one. Oats were considerably damaged by the bad weather that prevailed during harvest time. They were shattered off and bleached by the rains. In many fields the grain was badly lodged by storms, and there was much loss suffered in attempting to gather it. Hay was not secured in as good condition as it was last year. The wild grass was too much washed, and the timothy was put up in a "catching time," between showers. However, such as it is, there is more than enough for the home consumption.

The hog production this year will most probably be limited below that of last year, on account of the partial failure of corn. Good strains are bred, the favorites being Berkshire and Poland China. The Jersey Red hog does not seem to grow in favor very rapidly. It is possible that a taste will be developed in the direction of some of the smaller boned breeds; there is, at least, a little experimenting with the Yorkshire and Chester White strains.

About sheep not much yet can be said. Only a few are kept. The Cotswold has been the favorite for several years with those who fancied something different from a scrub. This year a flock of Merinos were introduced by a gentleman who moved here from Ohio. Sheep have not been profitable to those who experimented with them in the past, but possibly better care will give better results in this branch of husbandry, as in all others.

Our horses are becoming larger and showier, with better action. They keep pace with the improvement that is seen in other live stock. They are better fed and better housed than formerly. Although a few teams of good mules are owned by farmers, no interest is taken in breeding them. Those who own mule teams claim to think them superior, in some respects, to horses, but there is generally a prejudice against them.

Poultry makes quick response to the breeder's care, and is no longer despised as trifling. There is scarcely a flock in the county that does not show traces of "blood." The fashion is toward the better class up to the best, for chickens, turkeys and ducks.

Gardens are being vastly better attended to, and, of course, more highly appreciated than in former times.

The potato, though not strictly confined to the garden, is not so extensively cultivated as to entitle it to a place in the general field classification. The crop this year was not more than moderate in abundance or quality. The early varieties did quite well, but the late plantings were not so satisfactory. A dry spell in July and August cut them short. There is much of potato culture to be learned by the farmers of Jasper county before they will prove a certain source of profit. Occasionally they are grown abundantly and there is a surplus to export, but more frequently we have to buy from other localities. This year it is possible that enough were grown for home supply.

Hungarian and millet produce good crops, but are not generally grown.

Neither rye nor barley is grown extensively.

Flax does well on some kinds of the soil in favorable years. It was too wet for it this year.

Clover is gradually growing in popularity, but the culture is still in its infancy. With smaller farms there will be larger clover fields.

Timothy is the meadow grass *par excellence*. It gives better results than any other forage plant that has been tried.

Kentucky blue grass and white clover are becoming the basis of the pasture grounds. They obtain a lodgment and root out the wild grasses, even down into the wet marshes. The introduction of white clover does not much antedate fifteen years, but it has been industrious, until it may be seen almost everywhere by the roadsides and in pastures that were never broken by the plow.

Fruit culture is backward. A great many fruit trees have been planted out, and each year finds the householder planting a few more; but they are not cared for as they should be to give the best results. Orchards are seldom pruned and seldom cultivated with judgment. The prevailing idea seems to be that a tree can take care of itself. Apples were a moderate crop this year. They ripened too thoroughly to keep well, and harbored too many worms. Peaches did the best they could, considering the chance they have been given. Pears would do better if encouraged to try. Grapes seem to get along best with the most neglect. Very few have had the patience and courage to undertake much in the cultivation of small fruit, such as blackberries, raspberries and strawberries. When they find one who will care for them, they give satisfactory reward for the labor expended upon them.

The short yield of corn, oats, wheat and potatoes this season, and the rapid decline in the prices of all farm products has caused farmers to hold on to what they raised, and not much has moved to market. One of the consequences is that trade is dull. Farmers are wintering more stock and feeding more of their farm productions than usual. It is possible that the accidental situation will prove to some the correctness of the doctrine that more money is made by feeding grain to stock and putting it into good condition for market, than there is by the usual custom of selling them separately for somebody else to bring together.

Of the growing wheat all that can be said is that it was generally put into the ground well, it came up well, there has been a fall favorable to its growth, and that it is found in favorable condition by the winter. Acres enough have been planted to yield a surplus should the season be propitious.

HORACE E. JAMES, Secretary.

JAY COUNTY.

The Jay County Agricultural, Horticultural and Industrial Joint Stock Company held its eleventh annual fair on their grounds, near Portland, September 26th to 29th inclusive, 1882. The fair was a financial success. Receipts, with balance on hand from 1881, \$3,793.35; expenditures for the year, \$2,439.37; balance in treasury, after paying premiums in full, \$1,354.02. The weather was good during the fair. A very good exhibition of horses, cattle, hogs and sheep (except the horses for speed, which did not fully meet our expectations).

The Agricultural and Mechanical Departments were very well represented.

The grain, seeds and vegetables were in abundance and of good quality.

Floral Hall was well filled.

The fruit display was only ordinary on account of the almost entire failure in the crop.

The fair was well attended, and general good feeling prevailed, with a hearty desire to sustain and advance the interests of the society.

The soil of Jay county is well adapted to all kinds of grasses, cereals and vegetables raised in this climate, classified as follows:

1. Timothy, clover and blue grass.
2. Corn.
3. Wheat.

The hay crop of 1882 was above an average, on many farms yielding two tons per acre.

Corn, good average, 45 bushels per acre.

Wheat, ordinary average, 15 bushels per acre.

Potatoes, good, above average 25 per cent.

Oats, in some cases damaged by rust, 20 per cent. below the average.

Grain raising now predominates, but in the near future hay, stock and grazing will take the precedence in this county.

Much tile drainage is being done with good results. Barn yard manure and clover are the principal fertilizers used with rotation crops.

Portland is favorably situated, with two railroad crossings at right angles, to-wit: The Grand Rapids and Indiana, the Lake Erie and Western, with five gravel roads extending into the country therefrom. The improvements in building during the past year are substantial and permanent, far beyond our most sanguine expectations. The population, including the suburbs, is about 3,000 inhabitants.

The farmers have made rapid progress in building and otherwise improving their farms during the past two years. Many emigrants, mostly from Central and Northern Ohio, have purchased farms and moved into this county in the past two years, all adding some new improvements. Land and farms have advanced 50 per cent. within two years.

FENCING.

Rail fencing now predominates. As repairs are needed, some are replacing by board and hedge fences. The latter we can not recommend; prefer the barb wire and *iron posts*, which we think should take the place of all other fences as timber becomes scarce.

ROADS.

There are in Jay county seventy miles of gravel road completed, and twenty miles more in course of construction.

TIMBER.

Have the timber along the banks of all the streams, creeks and rivers protected, and, where there is none, transplant. This, we think, will be of two-fold advantage: First, shade for stock; second, protection against droughts.

ONE MORE SUGGESTION—THE EARTH.

"The earth is the source of all wealth," and "knowledge the source of all power."

We trust all will heartily unite in the advancement of a liberal education of the sons and daughters of the farmers of this State, that they may have the knowledge to fully develop the great resources and wealth of the earth. 2d. That they *may be the peers* of professional men in our legislative halls.

JONAS VOTAW, President.

JEFFERSON COUNTY.

I have the honor to submit the following report from Jefferson County Agricultural Society:

The society held no fair the present year, and is not in as flourishing a condition as the officers would desire to have it; but there seems to be an increasing interest in the welfare of our society, and a desire that the annual exhibitions be resumed. The merchants and manufacturers of our city are beginning to feel that our fair grounds should be utilized, and deplore the fact that the Grangers have

withdrawn their support from the established association. The Grangers hold an annual "jubilee" on their own grounds, located some four or five miles from the city—a location very inconvenient for citizens to attend.

SAM. S. TAYLOR, Secretary.

JENNINGS COUNTY.

The Jennings County Joint Stock Agricultural Association held their second annual exhibition on their grounds, within the corporate limits of North Vernon, August 8, 9, 10 and 11. The entrance fee, gate receipts and privileges were largely in excess of those of last year, and so complete was the success of the exhibition, that the press and patrons have been profuse in their praises.

The exhibition of horses, cattle, sheep and hogs was unusually fine. Owing to the early dates, the entries in the horticultural and agricultural classes were limited, but, withal, made a good showing. Until last year a successful fair had not been held in this county for fifteen years, and there is no doubt but the success of the present management is due more directly to a liberal and strictly fair policy, and a guarantee that all premiums will be paid in full without rebate of any character, than any other; the association choosing to lose the grounds and all invested, rather than suffer the disgrace and humiliation that always follows any pro-rating schemes.

The preparations being made, and the encouragement received from exhibitors and patrons warrants us in the prediction that the coming exhibition will fairly eclipse those already held.

The crops throughout the county have been so much more abundant than those of former years, that our farmers are showing signs of returning life, and are bending their energies, not only to increase their revenue from the land, but to improve their stock. This latter ambition has been brought about by means that can be more directly traced to the fair than any other. Already one farmer has imported two magnificent Norman horses direct from France, and others have procured Short Horn cattle, thoroughbred sheep and hogs from adjoining States and counties. These, distributed throughout the county, will make a marked difference in the character of the stock raised.

This county is especially adapted to grazing and grass, and a good grade of cattle and sheep will prove a valuable investment. The prospect for wheat the coming year is not first class, much of it having been damaged already.

C. D. SHAUB, Secretary.

KNOX COUNTY.

The past year has still further supplied evidence of the material prosperity and advance of the agricultural interests of our county. The almost unprecedented drought and the destructive visitation of the chinch bugs, whereby the crops of the preceding year were so nearly a complete failure, seemed to inspire our farmers to

a more vigorous and more intelligent system of culture than ever before undertaken. The mild winter enabled land owners to employ that season advantageously in clearing new ground of its forest, and in ditching and tile-draining lands heretofore given up to the coarse meadow grasses, and hence many hundreds of acres were for the first time then made ready for the plow. An early spring came in with a few weeks of bright, clear weather, preceding the season when the ground would be properly warmed to receive the seed, and was utilized in the construction and repair of fences, raking and clearing the ground of stumps, broken limbs, and trash of all kinds.

The barbed-wire fence was especially a favorite with all who had new inclosures to provide, it being found so much more economical and trim-looking than any other, and thousands of rods of this inclosure were built.

The lands lying in the immediate river bottoms were generally given to corn, and the careful plowing, to a depth but seldom resorted to before, and in a majority of instances the use of pulverizers preceding the planting, betrayed a determination to win a crop, and revealed the fact that the old days of hap-hazard farming are gone forever.

The increased acreage and the superior skill bestowed upon the culture resulted, under a favorable season, in producing the largest and most valuable crop of cereals ever grown in the county.

A great per cent. of the lands of our county lie in the low basin composing the dip between the two rivers bordering us upon three sides—the Wabash and White rivers—and this basin is dotted with many marshes and crossed by sluggish streams. Upon these low lands, in a state of nature, there grows a luxuriant flora, almost sub-tropical in its profusion and splendor. The task of clearing these dense thickets, and the labor and expense of draining, have long kept our farmers from occupying their rich soils. But systems of ditching, and the introduction of tile-draining under them, are gradually reclaiming them, and they are now eagerly sought after, being the most productive of all our lands. They seem alike adapted to the growth of wheat, corn and grasses, and are of inexhaustible fertility. Bordering this great basin, there runs a gently elevated plateau, almost exclusively devoted to the culture of wheat and to pasturage. It is upon this elevated land that our finest herds of cattle and sheep are produced. And it is an encouraging indication of the spirit of thrift and progress to note how completely the log stable and rail corn-pen, composing the entire outbuildings of the farmer of fifteen years ago, have given place to the commodious barns and convenient garner and bins, tool houses and sheds of today. Among these farmers agricultural journals and periodicals, books and paintings are found in houses where a few years ago a patent office report and an almanac constituted the entire library, and a crowing rooster or a triumphant coon, cut from the weekly paper after an election, posted on the wall, was the sole indication of taste and adornment.

Long summers and moist, warm winters, due to our isothermal position, especially fitted us by nature for the production of fruits. But it is only of recent years that our horticulturists have realized that an orchard was entitled to and demanded any care whatever. However, the 237 entries in this department, at our last annual

fair, were marvels of perfection. The table transmitted with this report will show the gratifying increase in the number of entries in each department over any preceding year, and how perfectly our exhibition was a financial success, and the growing interest in and attendance upon all our meetings, perfectly indicate our future prosperity. The steady advance from primitive ways and unskillful culture is so marked upon the character, rather than upon the number of exhibits, that mere tables feebly portray our growth. The quality of the article produced, its certainty and profit, have been so closely looked after by our committees on awards, that only the meritorious comes to be shown. The development in the quality of horses and cattle exhibited, hogs, sheep and poultry, may be almost as plainly noted at each of our annual fairs, as the floods of ancient rivers may be deciphered in their rocky banks. Skill and taste are bringing products to our competitive exhibitions, and the mere curious, the marvelous and prodigious are less esteemed. The annual display of home products—the thousand articles that go to make life pleasant and home elegant—the work of farmers' wives and daughters, cheerfully promise such success as will insure a happy future to all our farmer boys.

The ensuing year promises to show a still further improvement in many departments, and greater activity in all branches of agriculture than we have ever before witnessed; and in transmitting to you this flattering exhibit, I feel warranted in promising an equally good account next year.

Respectfully submitted,

GERARD REITER, Secretary.

LAGRANGE COUNTY.

The Lagrange County Agricultural Society held its thirtieth annual fair on the 27th, 28th and 29th of September, 1882. The weather being favorable the attendance was unusually large. The displays were fine, indeed, all the departments being well filled, and more than common interest being taken by exhibitors.

The display of horses, cattle, sheep and swine were above the average this year. The breeds of stock have been greatly improved during the last few years, and there are now many farmers in Lagrange county who justly pride themselves on their thoroughbreds.

In regard to the condition of agriculture in Lagrange county there is no reason for fault-finding; on the contrary, we congratulate ourselves upon our own success. Our principal products are wheat, corn, oats and potatoes.

The crop of corn and potatoes was good last season, they, perhaps, being more than an average crop, while the wheat yield was not so large as was hoped for.

As to the general improvement in the county it has been indeed marked during the last few years. As a rule the people are taking advantage of our ditch and drainage law, and thus the swamps and low plains are made to blossom as the rose. Of late years our people have been making quite extensive use of tile drainage, and seem to be well pleased with it thus far.

Lagrange county boasts of one cheese factory, which has been the means of building up a new industry in the county. The farms in the vicinity of the factory can now find a ready market for their milk right at their door.

The greatest need of our county at present is more capital engaged in manufacturing. There are large quantities of valuable timber that could be used in manufacturing, at a large profit; and our people would gladly welcome the individual who is willing to invest.

F. D. MERRETT, Secretary.

LAKE COUNTY.

The twenty-fourth annual fair of the Lake County Agricultural Society was held at the fair grounds on the 3d, 4th, 5th and 6th days of October, 1882, and was one of the most successful fairs ever held in this county.

The various departments were well represented, many of the animals being prize winners at our State Fair and the State Fair of Illinois.

Of cattle we had not as many entries, but those on exhibition were all superior representatives of the different breeds, Jerseys, Durhams, Herefords, Natives and Grades. Lake county is well up with her sister counties in cattle, and improving all the time.

In the Hog Department we had a fine display, the Poland China and the Victorias attracting great attention, and were considered as fine a lot as ever graced the pens of any fair. The Victorias are the white hogs, and are now recognized at the Illinois State Fair as a distinct breed. Mr. Davis, of Dyer, this county, originated this breed by judicious crossing. At the last Illinois State Fair these hogs took two second and three first premiums; at the Chicago Fat Stock Show, of this year, they took three first and three second premiums in the classes, and two premiums for best dressed carcasses over all breeds.

In sheep we could see a marked improvement, all showing blood and good breeding. The Merinos were above the average, very fine. The Longwools were in excess of all previous fairs, the Cotswolds maintaining their reputation as one of the best of this class of sheep. The Oxford Downs, a great favorite as a medium wool and mutton sheep, were represented by five herds, as fine specimens as could be found at any fair.

Of horses we had a splendid lot; Clydes, imported from Canada and Scotland; Cleveland Bays, from England, and others raised from pure blood in this county, and in other portions of this State and in Illinois, altogether made such a display as is not often seen at a county fair.

The Floral Hall, built this year at a cost of \$1,473.68, was one of the chief attractions of the fair. The exhibition of woman's work, in all that makes home happy and attractive, was well represented.

Vegetables and farm products made a good showing, and the new varieties of potatoes received much attention.

The interest in poultry grows each year; this year we had more entries, and almost every variety known on exhibition.

Our fair had good weather, a good attendance, and was, financially, one of our best. We pay all premiums in full, and always have.

Our race track was in good trim, and the lovers of horse flesh improved it—had races every day. It has been a social holiday that all have enjoyed. To the farmer, from a business standpoint, he has learned the lesson of the fair, noted the improvements in stock and will profit by it, many buying to improve their herds.

Lake county is a stock county. Grass and hay are king here; corn and oats lead in grain. Wheat, in the eastern part of the county, is grown by many. Its nearness to Chicago has a great influence in molding its system of farming; dairying for butter, and in some parts for cheese, being the sole purpose of some farmers.

Milk is now being shipped to Chicago, and promises to be an important industry in the future.

Tile draining is in its infancy. Some have commenced with the best results.

Roads.—We have no gravel roads. Give the new road law more time; it may work well yet.

Corn.—Poor crop this year; very wet in planting time, then very dry.

Dog Law.—A failure; any man can put on a tag.

Fences.—Barbed-wire takes the lead now. Every man here must take care of his own stock.

Highways.—The best way to improve the public highways here is to get rid of the water from excessive rainfalls.

Ensilage.—No silos yet, but we are looking that way; it is in our line of business, and we mean to keep up with the rest.

GEORGE I. MAILLET, Secretary.

LAPORTE COUNTY.

The thirty-first annual fair of the Laporte County Agricultural Society was held at the fair grounds, near Laporte, September 19 to 22, inclusive.

The fair or exhibition was quite good, and a success financially.

The Ladies' Department was very fine, and by far the best exhibition ever made in this department in our county, the credit being entirely due to the indefatigable efforts of the ladies.

The attendance was large, the weather being delightful.

Agriculture in our county is in a prosperous condition. More and better agricultural implements and farm machinery was marketed than ever known before in one season.

During the past year the Door Prairie Live Stock Association imported a large number of very superior Clydesdale and Cleveland Bays, while Messrs Crumacker, Winters & Co., imported a number of very fine Normans from the best horse provinces of France.

In consequence of many serious financial embarrassments, our Agricultural Society has been placed in the hands of a Receiver. Initiatory measures have been taken, however, for the formation and permanent organization of a new society, of which Mr. William H. Banks is the temporary President.

The fair grounds belong to the county, and no doubt a lease for a term of years will be made to the new society, after which many permanent, needful and lasting improvements will be made upon the grounds.

If the proper interest and co-operation is manifested, no county in the State could make a better exhibit of farm products, fruit, stock, manufacturing and fine arts than Laporte county.

GEORGE C. DORLAND, Ex-Secretary.

MADISON COUNTY.

The fifteenth annual fair of the Madison County Joint Stock Agricultural Society was held on its grounds in Anderson, Sept. 6th to 9th inclusive. The weather was all that could be desired. We had an increase both in attendance and entries over any other fair, save one, which the society ever held. Our departments were all fairly full. The Fine Art Department was too full for the size of the building, which crowded the exhibits so that the committee had a very difficult task to perform, but they did it well. The Horticultural Department was under the management of the Madison County Horticultural and Farmers' Club, and the show which they made would have done credit to an older organization. The grain and seed exhibition was very good, especially in that of wheat and corn. The visitors were very much surprised at the the display, both in quality and quantity.

Corn.—The exhibit excellent and very good. The crop the very best, and more than usual.

Hogs.—The exhibit not up to the usual standard. After corn comes hogs in production. The breeds are the Berkshire, Poland China and Jersey Red, with a preference for the first named, either pure breed, crossed or common stock.

Wheat—Excellent, and of the very best quality, and a very good crop; more than the average.

Cattle.—The improvement in this county has been altogether in the direction of beef. There are but few good milkers or butter producers to be found in the county.

Hay.—In no former year has there been so much good hay put into stack.

Sheep.—The sheep culture is not given that attention it should have. There are few flocks, occasionally a thoroughbred, but most are all common or mingled blood.

Horses.—Are chiefly what may be called general purpose. A few "flyers" are owned in the county.

Poultry.—We have but few of the real genuine "chicken fanciers." They have some of the very best breeds. The egg trade has increased until it is no small factor in business.

Fruit.—Was a failure this year both small and large.

Flax.—Not much sown this year, therefore small crop.

Dogs.—We have the usual large crop of dogs regardless of the new dog law.

Fences.—Our fences are mostly rail. Some of our farmers are hedging, boarding and barb wiring.

Buildings.—The farmers are making very great improvements in this direction, by replacing the "old log cabin" and sheds, for brick and frame.

Roads.—Our dirt roads are very good, but our farmers are making them better under the new gravel road law.

With the rotation of crops, and the many new gravel roads, the streams all bridged, our new county jail and new court house, to be completed June 1st, 1884, and a reduction of taxes, we will soon have the banner county in the State for wealth and good buildings.

C. K. McCULLOUGH, Secretary.

MARION COUNTY.

The Marion County Agricultural and Horticultural Society holds monthly meetings, embracing all the months of the year, and are conducted upon the plan of agricultural clubs. Papers upon various agricultural and horticultural subjects are read from time to time. Reports upon the prospects of crops are made, and a general interchange of opinions and expressions are had at each meeting.

For the months of November, December, January, February, March and April the meetings are held in the city, and for the remaining months of the year the meetings are held in different parts of the county, at which premiums are awarded, largely for the exhibit of agricultural and horticultural products, including (at one or more of these exhibitions) live stock. It is intended, however, to give most encouragement to the increased production of vegetable and horticultural products, for the reason that our county is largely interested in supplying the market demand for such productions in the city.

The farmers and gardeners of this county, for the most part, are not large land owners and, hence, are interested in making the small tracts of land which they cultivate yield the largest possible returns for the amount cultivated.

There are tracts of land in this county embracing only a few acres (three or five, more or less), which, by underdrainage and high manuring, are made to yield so abundantly that the profits derived are equal to the receipts of money of eighty or one hundred and sixty acre farms less favorably situated in other portions of the State.

The soil of this county, excepting the bottom lands, is a clay loam, resting upon a retentive clay subsoil, every rod of which is benefited by

UNDERDRAINING.

This important improvement of the soil has received much attention, but not to the extent that its importance demands. There are but few tracts which may be said to be thoroughly underdrained. But experience has demonstrated that no investment of money will yield such a satisfactory return of profit as that which is judiciously invested in underdraining, which is especially true of lands that are held at high prices on account of their being near to and adjoining the city. The agriculturists of this county are vitally interested in bringing every rod of their lands devoted to agricultural purposes to the highest possible productive conditions.

Much attention is given to the application of

MANURES AND FERTILIZERS,

With very gratifying results. Acres of land are frequently covered over with a layer of manures or whitened with ammoniated fertilizers. It has been the purpose of this society to promote the highest interest of agriculture in this county by offering such premiums as would direct the attention of our farmers to the production of such crops as would prove most profitable with our market facilities—conserving to the greatest good of the greatest number. Almost every branch of agriculture receives special consideration during the year. The care of stock, selection of seeds, plants, fruits, etc.; the preparation of the soil and cultivation of all kinds of agricultural and horticultural products, markets, etc., are named to indicate the field intended to be occupied by this society. The holding of meetings and exhibits, with awards of small premiums in various parts of the county, has served to interest a larger number than would otherwise be benefited, in our judgment, if the entire work of the society should be expended in one exhibition in the year, with side shows and fast rings, and the demoralizing influences that too often find a place in many county expositions. After several years experience in the work in hand, the society is more than ever convinced that it is serving well the agricultural and horticultural interests of the county, and has made preparation for a further important advance for the year 1883, by giving encouragement to the making of some agricultural experiments, which we hope to report in the future.

J. J. W. BILLINGSLEY, Secretary.

MARSHALL COUNTY.

Our fair of 1881, owing to unfavorable weather, was a financial failure. After the premiums and all expenses were paid, the proprietors, Messrs. Scofield and Selt-enright, who are the owners of the fair grounds, were \$200 short, the fair being a private enterprise. The failure of that year, and the unfavorable prospects in the early part of 1882, for full crops, they decided not to hold any fair last fall, but leased the grounds to our enterprising agent of the Roller Drill, Mr. Jet Miller, of Argos, through whose efforts a free exhibition was held the first week in October. No premiums were offered. The number of articles on exhibition was very few, but the attendance of visitors was very fair.

The opportunity for improvement afforded by the ditch law of the State is being taken advantage of by those who own wet land, and the greater portion of such land will be drained and brought into cultivation in a few years. This county is improving remarkably fast, and in a few years will rank second to no county in the northern part of the State as a grain-producing and stock-raising county. Short Horn and Jersey cattle are now taking the lead. Clydesdale and Norman horses are being introduced and bred, and the farmers are alive to the importance of raising the improved breeds in all classes of stock.

Our fair of 1883 will be held at Plymouth, on September 25th to the 28th.

W. H. CONGER, Secretary.

MONTGOMERY COUNTY.

The 11th day of September, 1882, ushered in the third exhibition of the Montgomery County Agricultural Society. Our week, which had been selected after much consideration as to confliction with other fairs closing so near the middle of the month, when equinoctial storms are likely to occur, was, by a great majority of our members interested, considered a very dangerous one, but with each succeeding day of the fair hope sprung up, and as the fair closed on Saturday night all felt satisfied that the weather had been immense, just the same as it has always been with us.

From telegrams and communications of various sorts the week previous to the fair, we were apprised of the fact that our stalls, pens, etc., would be entirely inadequate, hence the necessity of more, and a large force of workmen were at once put to work, and well they were, for even then every available stall and pen was filled with the finest the world affords.

In our Horse Department we had 487 entries. To speak of the quality of the stock, I feel, would be entirely unnecessary, as the reader can easily form an opinion from the number of entries.

In our Cattle Department we had 153 entries, certainly very fine. Among the Short Horns were the celebrated herds of J. H. Potts & Son, Jacksonville, Ill.; H. Sodowsky, Indianola, Ill., and Thomas Wilhoit, Middletown, Ind. The Hereford show was indeed a great attraction, being represented by herds belonging to C. M. Culbertson, Hewman, Ill.; Earle & Stewart, Lafayette; Thomas Clark, Beecher, Ill.; Fowler & Van Natta, Fowler, Ind., and C. K. Parmelee, Walcott, Ill. This being the first exhibition of the Herefords in this county, they were gazed at with interest, and, I may say, a great deal of admiration.

The swine, sheep, poultry, and, in fact, every other department, were alike as well filled as the ones just spoken of, and certainly the reader will not need be told that the show was a success.

The attendance, as with all fairs on Tuesday and Wednesday, was not large, but fully up to expectations and beyond that of last year; but with the opening of the gates on Thursday morning came such an outpouring that we thought (although our grounds contain 63 acres) it would be impossible to care for the crowd. We got through with it, however, without a single accident, and registered 22,000 tickets sold. The attendance, both Friday and Saturday, was large.

The result of the week's work, when summed up on Saturday night, showed 38,984 tickets sold, and receipts from all sources, \$12,586. Premiums paid and other expenses, \$8,219, leaving a balance in the treasury of \$4,367.

The association, with a capital stock of \$15,500, own the ground in fee simple, worth \$20,000, with improvements worth \$15,000, with an indebtedness of but \$3,000.

Enough has been said of the ground in former reports and from other sources, that I deem it entirely unnecessary to speak further on that point.

The question: "What shall be the Fence of the Future?" is becoming very important here. The original growth of timber, in the form of sawed lumber and

staves, is rapidly being shipped from the county. It now behooves the land owner to devise a plan by which he can do without a portion of that expensive luxury, "the common rail fence."

Although the law of the State is thought to be cumbersome and defective in many respects, our county has, by petition, constructed a number of open ditches. Such drains, properly cared for, will prove of great benefit by drying up marsh lands, thereby bringing into cultivation much land heretofore unproductive.

The county has seventy-four miles of free gravel road, built under the law of 1873, fifty-five miles of toll road, and twenty-five miles of gravel road built by donations.

F. L. SNYDER, Secretary.

MORGAN COUNTY.

The Morgan County Agricultural Association held its thirtieth annual fair October 3 to 7, with fine weather, and a fair attendance of stock, though not so large as some previous years. The display of agricultural machinery was the largest and finest that has ever been exhibited on our grounds. The attendance was very fair, and more interest seemed to be awakened in the improved farm machinery than any other department. Right here I desire to indulge in a little speculation on the future county fairs. It seems to me there must be a radical change in the management of the future county fair to make a success of it. The old plan of securing an attendance by the horse races, or by advertising some famous fast horse to be present has had its day, as have the balloons and side shows, with all their attendant tinsel and clatter. Something of real solid worth to the community who patronize the society must be offered. It seems to me that the State Board might be of much assistance to county societies, in suggesting ideas for new features, and the county societies in assisting the State Board to make the State Fair a still greater success than it is. But as matters stand there is very little, if any, improvement in county fairs from twenty years ago. The same big pumpkin, squash, cabbage and beets, with fifty cents to one dollar premium, each, is the rule. Continue this line and the interest in county fairs will soon die out.

What shall the future county fair be?

Condition of Agriculture.—The Wheat crop in this county this year was very good, above the average. Corn crop short, oats good, all other crops fair.

Fruits.—Orchards have been badly damaged by the cold winter of 1880. Apple trees were so badly injured that in some places whole orchards have died out entirely. Peach trees were more than half killed; small fruits but little injured.

Roads.—The road law is being generally cursed, for the reason that we have no funds with which to work the roads, and under the new law do not get any until in June, 1883. Probably when the law is fairly enforced it will be better liked.

Gold.—Gold has been found in the southwestern part of our county, during December, 1882, in quantities that it is thought will pay to work. Some fine specimens of quartz have been found, and sent to Denver for assaying, and we will soon know what there is in the gold mines of Morgan county.

H. A. SMOCK, Secretary.

NOBLE COUNTY.

The twenty-seventh annual exhibition of the Noble County Agricultural Society, held at Ligonier, October 18-21, 1882, was one of the most successful exhibitions in Northern Indiana, and by far the best and most satisfactory ever held in Noble county. The exhibits in nearly all departments were larger than ever before. Much interest was manifested by the people generally, and every one hoped for success. The weather was delightful and everybody happy. Exhibitors, as a rule, seemed to think that there were other things to be gained aside from the few dollars awarded them as premiums—hence our splendid success.

The show of horses was very fine, 162 entries being made in this department. The quality of animals shown attest the increase of interest taken by our farmers in the improvement of their stock. Clydesdales and Normans for farm horses, and Hambletonians for roadsters, seem to be the favorites.

In the Cattle Department there were thirty-seven entries, nearly all of which were of the Shorthorn breed. Some fine graded stock was also shown. The Shorthorn herds of George Growcock and N. Roberts, of Noble county; Joseph Ripley, of Elkhart county, and John T. Glass, of Wells county, were on exhibition, and, everything being considered, was the finest exhibit of cattle ever seen in Noble county. Farmers are giving more attention to the breeding of cattle, and the improvement has been very marked.

The Hog Department was below the average, owing, no doubt, to the prevailing hog disease.

In sheep there was a very fine exhibit of attractive animals. Coarse, middle and fine wool breeds were fully represented. The wool-growing interest is on the increase.

Agricultural Hall was full to overflowing of wheat, corn, oats, potatoes and other agricultural products. Improved farm machinery of nearly all kinds, and from leading manufacturers, was on exhibition, and was one of the attractive features of the fair.

The Ladies' Department was very fine. It is beyond my power of description to give an adequate idea of the many beautiful specimens of handiwork placed upon exhibition by the ladies of Noble and adjoining counties. The taste and skill displayed in the arrangement, made this department very attractive. Much credit is due the ladies.

The growing of wheat and corn occupies a large share of the farmer's attention, although the raising of improved stock is receiving more attention from year to year. The wheat crop for the last two years has been light. In 1881 about half an average crop was produced; in 1882 about one-third an average crop. The corn crop of 1882 was quite large, being about one-third above an average crop; quality, not first-class.

There is a marked improvement in the manner of farming each year. The care of the soil is receiving greater attention; rotation of crops is being observed; the seed selected more carefully; the planting and cultivation executed with a greater degree of precision and care.

In the matter of drainage there is a marked advancement from year to year.

Notwithstanding the partial failure of the wheat crop for the last two seasons the march of progress has been steady and sure. In almost every direction comfortable, and in many instances commodious, residences have been and are being erected, while those who are provided for in that respect are building great barns, or otherwise adding to the comfort and utility of their surroundings.

The roads of the county are in a fair condition, but no improvement has been made within the last year, the Legislature failing to provide a fund for that purpose at their last session. It is the opinion of a large majority of our best farmers that stock should be fenced in. Every person should take care of his own stock.

The late dog law probably brings more revenue into the treasury than the old, but whether it is the best plan that could be adopted, I am unable to say.

The society is in excellent working condition. The grounds and improvements are owned by the organization and are entirely free from debt, and a surplus in the treasury. During the last year a neat and attractive hall has been built, and other improvements made, costing about \$700. For next year other improvements are under consideration. The Managers are determined to make the grounds the best and most attractive in Northern Indiana.

J. H. HOFFMAN, Secretary.

ORANGE COUNTY.

The third annual fair of the Orleans Agricultural Association was held on the fair grounds adjoining Orleans, October 4, 5, 6 and 7, 1882.

The grounds, twenty acres, were leased three years ago for ten years, the stockholders making the necessary improvements, which cost them about \$1,700. Substantial buildings were erected and a well sunk that affords an abundance of water.

The display in all the departments was good, and that of horses, cattle, and in the Floral Hall, exceptionally good. Quite a number of fine Short Horn cattle were on exhibition from Kentucky, and were all sold here.

The receipts of the third annual fair from all sources were \$1,390.55, and disbursements, \$1,204.05; had \$50.58 in treasury, leaving balance in treasury now, \$237.08. Every premium was paid on the "spot."

The wheat, corn, oats, hay and potato crops in the county were good. A great deal of wheat was shipped from this place to eastern markets. Apples were abundant; plenty for the local demand and a surplus shipped to other markets. Hogs were not so plentiful as in former years on account of the failure in corn crops last season. There has been quite an improvement here on buildings within a few years, the object being to procure plenty of light and fresh air, for every one must know that light and air are two of nature's great healing remedies. The farmers here generally take great pride in having their farms supplied with good stock. For fear of making our report too long, we will close by saying that at our fairs we do not allow any gambling, games of chance, nor anything of the kind, thereby securing the patronage of the very best people in this and adjoining counties. Our fair was a success, and general satisfaction expressed by all who patronized us.

BENTON J. HON, Secretary.

PARKE COUNTY.

The third annual fair and exhibition of the Parke County Agricultural Society was held at Rockville, on August 21st to 26th, inclusive. Considering that the time for holding the fair had been set for a later date in the season than the preceding exhibition, and the same time as seven different fairs in the State, it was thought by many we would have a small affair; but, on the contrary, we had the best and largest exhibition ever held on our grounds, the number of entries running over thirteen hundred.

We had some of the finest stock that Indiana and Illinois can produce on exhibition. In the horse show it could not be excelled, as some of the horses that bore off the red ribbons here did the same at the State Fair.

In the cattle show it was simply grand, although Mr. Johnson, of Illinois, took the majority of premiums in the Short Horn class.

In the Hog and Sheep Departments, although the numbers were not great, the specimens were extra.

The show of mules was very small, though the quality shown was good. It is considered by many that Parke county is one of the best mule counties in the State, as not a few spans have been sold this fall and winter for \$500.

In the poultry class very few entries were made.

In the Agricultural Hall it was shown that Parke county was a "flower in the garden," when it comes to agricultural products, as the specimens on exhibition were the finest ever seen in this part of the country. Wheat, from fields that averaged forty-two bushels to the acre, and corn, 120 bushels to the acre, is still on exhibition at the National Bank, in Rockville.

Never a finer display in fruits did human eyes behold—and grapes that would melt in a person's mouth as sugar in water.

The Flower Department was well filled, mostly by ladies in Rockville, and from Mrs. Tenbrook's greenhouse, who always does her best to make a fine display.

The Ladies' Department was filled to overflowing, there being scarcely room in our large Fine Art Hall for the numerous articles of fine art.

The Cookery Department was so full that it took two committees one whole day to do it justice.

Agriculture in our county is in a prosperous and progressive condition. Corn and wheat raising predominates over every other industry in this county. The corn yield this year is extra large—and farmers are marketing it—being from fifty to ninety bushels to the acre.

Wheat was over an average crop, which has caused a large crop of wheat to be sown.

The raising of millet in this county has been extensive for cattle feed, which proves a success.

Our county is blessed with free gravel roads. There are now ten such roads in the county, and two toll-roads, with several more free roads ordered built by the County Commissioners.

As to draining, our farmers are straining every nerve to drain every acre that needs it; fortunately, our county needs but little draining, except in a few beech flats.

As to the improvements of the county in the building line, we claim the banner. We have the finest court house and jail in the State, outside of Indianapolis—at least the traveling men say so. Both buildings are heated throughout by steam, and lighted by gas. The hard-working farmers are moving from the old log houses to fine frame and brick dwellings, and building barns large enough to hold the harvests.

Since our society organized in this county, stock raising has taken a "boom," especially in horses and cattle. Several firms have been formed, and they have imported to the county some of the best stock that money could buy. The largest firm is Puett & Co., of Rockville, who late this fall added to their stables three fine brood mares, all bred to "Onward" and the black stallion colt "Baltic," by Wm. Rysdyk's Hambletonian, he by Rysdyk's Hambletonian. This stock was purchased of Col. R. P. Peppers, Frankfort, Ky. They are also the owners of the famous mare "Black Jane," dam of "Rosa Wilks." Several of our rich farmers attended the great cattle sale at Chicago, this fall, and purchased a carload of the finest Short Horns that were sold.

Our society paid every claim, dollar for dollar, and had a small surplus left in the treasury after paying about \$500 out in new buildings.

DAVID H. WEBB, Secretary.

PERRY COUNTY.

The Perry County Agricultural and Mechanical Association held their eleventh annual fair on their grounds, near Rome, Ind., beginning October 2, and continuing until the 8th. The exhibit far excelled that of any previous year, not only in amount, but in quality. Unusual interest was manifested by the agricultural portion of the community in making it a success.

In the line of cereals, root crops and fruit, the exhibit was pronounced the best in the State.

In the Women's Department the display was not so large as that of some previous fairs of the Society, but was much finer in quality.

The condition of agriculture throughout the county is good. The acreage of wheat sown is larger than that of last year. Much of it was put in in the most approved manner. Much damage has, however, been done by the fly.

Hogs are scarce.

Sheep are being pastured on much of the early sown wheat.

The use of all the improved labor-saving implements is fast working its way into favor by all those who are able to procure them.

The grounds and buildings of the Association are in good condition, and the present Board will, by efficient management, make the coming fair surpass any of the past.

FLINT DEWESE, Secretary.

PIKE COUNTY.

The Pike County Agricultural Society held their twelfth annual exhibition on their fair grounds, adjoining Petersburg, the county seat of Pike county, commencing on Monday, the 4th of September, and terminating Saturday, the 9th. The fair was a financial success. Our receipts and expenditures were as follows:

Receipts	\$2,904 85
Expenditures	2,004 60
Net profits	\$900 25

There was a larger attendance at our fair than usual, and also the entries were very materially increased. The exhibition of horses was very creditable, also sheep. The only falling off was in cattle and hogs, which I attribute to our short crop last year. There was an unusually fine display in the hall of the products of Pike county's rich soil. Included in this display was all kinds of grain, vegetables and fruits. There was also a large and varied collection of articles which embraced both the beautiful and the useful—the handiwork of the ladies of Pike. The hall was the great attraction of our fair, and was filled with admiring spectators from morning until night.

Our fair grounds contain twenty-nine acres, and is held in fee-simple. It is beautifully located, well shaded and watered, with ample accommodations in the way of stalls and pens for all kinds of stock. It is the universal verdict of all horse men who have visited our fair, that we have one among the very best half mile tracks in the State. During the past year the society erected a very convenient and commodious Fine Art Hall, and offices for Secretary, Treasurer and Board of Directors, besides many other permanent improvements. Our financial condition is good. The land and improvements are worth at least \$4,000, and our present indebtedness is only \$240.

The condition of agriculture in Pike county is prosperous. Wheat, corn, oats, tobacco, grass and potatoes, all do well, the yield being considerably over the average. There was also a great improvement in fruit, both in yield and quality. Our farmers are paying more attention than ever before to improving their farms and increasing the productiveness of the soil. Red clover is the principal fertilizer used. Our soil is unsurpassed in fertility by any county in the State, producing excellent crops of wheat, corn, tobacco, grass, and indeed all the crops raised in this latitude without any artificial manures, while the Kentucky blue grass grows spontaneously.

In addition, more than two-thirds of the county is underlaid with a most excellent quality of coal, none of which has been developed or used except for local purposes. Several of these coal veins measure from nine to eleven feet of solid coal, while none are less than four feet. The timber through it has been most recklessly destroyed in the past, the amount left is very considerable.

Our county being out of the lines of travel, and having no railroads, until recently has been overlooked. Very little capital has ever come into our county. The immigrants that have come to us, as a rule, have been poor. What wealth we

have has been produced or made from our soil. But there now appears to be a brighter future opening for us. The Louisville, New Albany & St. Louis Air Line Railroad is now completed and running through the southern part of our county, and the Straight Line Railroad is completed from Washington, on the O. & M. Railroad, to Petersburg, our county seat, and will soon be finished from here to Evansville. With these two railroads and White river, which is navigable for steamboats six months in each year, it will be the means of developing our rich resources, both agricultural and mineral, and remove the disadvantages under which Pike county has labored for over fifty years. With these facts, I have no hesitation in saying that there is now a better chance for profitable investment in Pike county coal and agricultural lands than can be found in any other county in the State, and, further, that it would be greatly to the interest of farmers, mechanics and manufacturers, who wish to change their present location, to give Pike county a look before going elsewhere.

There has been a marked increase in the number of sheep in this county under the operation of the present dog law. The security afforded to sheep raisers by that act has induced many who had entirely abandoned sheep raising to attempt it again. It is true, the law is not fully enforced in some localities. I think if section 2647, which requires all persons to take out licenses on their dogs on or before the first Monday of April, was amended so as to increase the tax after that time to, say, \$2 on male dogs and \$3 on females, it would have a good effect. Also, authorize the Township Trustees to deputize persons to kill unlicensed dogs where there is no Constable, or when a Constable, from any cause, fails to perform his duty. I should also recommend that section 2650 be amended so as to allow 75 cents for killing dogs, and also mileage. If these amendments were adopted, I think the law would be more generally enforced, and would then afford ample protection to sheep raisers.

In regard to stock running at large, there is no question but that it is a nuisance, and should be abated. There is comparatively little range in our section of the State that is not inclosed. All the better class of farmers keep up their stock, and the additional fencing they have to maintain to keep out other people's stock entails an expense on them that would pay for all the stock that runs at large every year. Furthermore, the time is rapidly approaching when there will not be timber sufficient to maintain our present fences. There are several farms in this county to-day that have not enough timber left to fence them. Hedging with us has not proved a success, and the barbed wire fence, with the necessary posts and planks to keep out the hogs, is expensive. Something should be done, and that quickly, to relieve our farmers of this heavy expense, caused by stock running at large. The remedy I would suggest is, that the Legislature pass a law authorizing the County Commissioners to make an order forbidding any stock running at large in any township or county whenever a majority of the freeholders, who shall also be householders, of any township or county, shall petition in favor of such order; and, also, that the Legislature shall fix such penalties as will insure the enforcement of the order, and that ample notice be given to the citizens of such township or county, as the case may be, when such order will take effect, giving such time as may be considered reasonable for all to prepare to take care of their own stock.

ROADS.

The old law being repealed, and no tax collected as yet to carry into effect the new law, our roads are in a wretched condition. Where there is not sufficient rock or gravel to make roads, as it is with us, I am satisfied that a complete system of drainage, both surface and by tile, and proper grades are the only means to be used to make our dirt roads passable. Unfortunately for a fair trial of our new road law, many of the Road Superintendents elected have no practical knowledge as to the best manner of improving the roads, and some of them very little judgment on any subject. But this is only a slight drawback that we have to pay for that inestimable boon we enjoy of electing all officers, from President to Constable, and where everybody is eligible to office, and everybody votes.

FORESTRY.

It is very evident to the most superficial observer, that if some steps are not taken soon to replace the vast amount of timber that is being used and destroyed in this country, and more especially in our own State, every year, we will soon have neither timber for mechanical purposes nor fire wood. Already our magnificent forests of poplar, walnut and ash have nearly been used up. What effect the destruction of our forests will have on our climate, rain fall, etc., I leave to others to discuss who are better posted on that branch of the subject; but we can all understand the great inconvenience and pecuniary loss that would result to all classes of our people should timber become very scarce, consequently very valuable.

I think the first step to be taken is to bring the subject of forestry more permanently before the people, and to do this the newspapers, and more especially our agricultural journals should urge upon their readers the necessity of commencing at once the planting of trees. Information should also be given as to the best means to be used to preserve our remaining forests, and also the best mode of planting and cultivating timber and the kinds most desirable to grow, and any other information that will tend to make tree planting a success. I would also recommend that all lands that are used exclusively for forestry purposes should be exempt from taxation; and that premiums should be offered and paid by the counties and by agricultural societies, under proper regulations and conditions, to encourage our people to commence on this most important work. In conclusion I wish to call the attention of farmers to the fact, that notwithstanding there are over seven millions of our people engaged in agricultural pursuits, and that the value of the farms, improvements and farm implements, amounts to \$12,250,750,000, and that the value of the annual product is \$4,526,752,000, thus showing conclusively that in point of numbers, capital invested, and wealth produced, that the agricultural interests far exceeds all the other industries of the country combined; yet you have a very little share in making the laws or shaping the policy of the National Government, or your State. There are comparatively few farmers, either in our National Congress or our State Legislature.

When we take into consideration the fact that there is not a revenue or tariff law passed by Congress, or a commercial treaty made with any foreign country, that does not directly affect agricultural interests; and further, that three-fourths

of all the taxes collected in this country, either directly or indirectly, are paid out of the products of agriculture. With these facts before us has not the time fully arrived when farmers should take their proper share in the management of the National and State Governments, which their numbers, wealth and great interests entitle them to? When farmers do this their enterprising, educated sons will stick to the farm, instead of rushing into the over-crowded ranks of the learned professions or commercial pursuits. For them the road to honor will be open, and they will have an equal chance with those who have chosen other avocations. They will have an opportunity of gratifying a laudable ambition to serve their country, and also protect the interests of agriculture with which they will then be identified.

GOODLET MORGAN, Secretary.

PULASKI COUNTY.

The ninth annual fair of the Pulaski County Agricultural and Mechanical Association was held at Winamac, September 20 to 23, 1882, inclusive. The agricultural interests of the county are in a good degree of prosperity. A general rivalry has been aroused among farmers, which has caused great improvement in farming and the conditions and methods used in their maintenance. There has been a marked improvement in stock the past few years, in the way of horses, cattle, sheep and swine, and especially is the improvement noticeable in cattle and sheep. Short Horn, Durham and Jersey cattle are the grades most sought after. Cotswold and South Down sheep are taking the place of the native coarse wool. Our fair gave general satisfaction. The agricultural display was never equaled, notwithstanding the lateness of the season and the four weeks' drought prior to the fair. The horticultural display was never better. Although a partial failure in fruits, there was as fine a display in the Floral Hall as could be desired. The entries were not so large as in 1881, but the display much better. There have been many permanent improvements made in the county, the past year, in the way of buildings, clearing, fencing, ditching, and the planting of fruit and ornamental trees. The county is settling up very fast. A great many Germans, direct from the Fatherland, are settling in the county, and in a few years Pulaski county will be second to none in the State for grain growing and stock raising.

JESSE TAYLOR, Secretary.

PUTNAM COUNTY.

During the last twenty years there has been a very rapid and pleasing change in the agricultural interests of this county. Look where you will—over the rolling uplands, along the rich valleys, or through the majestic forests, this change is visible. The result of a higher regard for general appearances is everywhere apparent. The last vestiges of trees are disappearing from our meadows, through the persuasive influence of dynamite and blasting powder; and the swamps, once profitable

only to the family doctor by reason of their poisonous exhalations, are thoroughly drained, and are now regarded as some of the most productive portions of the farm.

Not only in the farm and its equipments is the change discernible, but in the owner likewise. The affairs of our farms are now managed by a more competent class of men. Farmer Fogy and his admiring crony, Joe Slowgo, have "turned out" for the last time, and lie locked in a sleep that music of dinner horns will never waken; and farmer Thinkwell and his staunch friend, Buy-the-best, now tickle the sturdy sides of their fields until they fairly sway to and fro with a great harvest.

The most approved kind of implements are in active, constant demand. The old-fashioned breaking plow, the double shovel plow, oftener called "double trouble" by the boys, on account of its jiggling propensities, and the "A" harrow, that was several times more efficacious than Hoosier liniment to draw blisters on horses' shoulders, now lie, forgiven and forgotten, among the weeds of the old barnyard, and the sulky plow, the walking cultivator, and the disc harrow have taken their place. The wheat fan, in the supplying of whose wind-power many a boy can attribute the loss of a wet afternoon's sport, and with which if twelve bushels of wheat were cleaned in one hour, all hands were confident that the world was moving, has been shoved into an obscure corner of the barn, and out of the way of the asymmetrical, self-stacking separator. The grievous trouble once felt by the farmers in getting the boys to "drop the corn right," is past forever, and every spring he surveys, with quiet satisfaction, the good work of his check-rower cornplanter. In all the long list of tools used on a farm, the change is equally apparent.

In the quality of our live stock there is not (though very good) such a marked change, from the fact that the early settlers of this county, mainly from Kentucky, had a true Kentuckian's pride in maintaining good breeds, especially of horses.

Our public highways, taken in the aggregate, have received proper attention from intelligent supervisors, and afford easy and rapid passage. In particular is this true of the toll roads. Eight free gravel roads are in various stages of progression, and the construction of one or two more is under contemplation.

The hedge fence and the barbed wire fence are regarded by farmers and others as the cheapest, in point of durability and effectiveness. We are aware that complaint has been made against the barbed wire fence; that hogs can creep between the wires; that horses, in attempting to jump over, are impaled upon the wire and fatally injured. To stop the former and prevent the latter, the fence should be built not less than five feet in height, post securely braced, and the wires drawn perfectly taut. When this is done—and it is simple enough—the fence will turn all kinds of stock.

The crops of the present year were bountiful, notwithstanding the exceedingly unfavorable weather of last spring. The hay and wheat fields, in particular, yielded very generous crops. The cultivation of wheat is conducted with great care, and the result is so satisfactory that an enlargement of the fields every year is the necessary consequence.

The Putnam County Fair continues to occupy an unmerited position of unpopularity, notwithstanding the sturdy efforts of the officers, coupled with the generous aid and encouragement of a few patrons to place it upon the plane where it properly belongs. If the people of Putnam county persist in withholding their patronage, if they continue to discard all interest in the efforts of the Society, it is utterly impossible to build up our agricultural show.

A. O. LOCKRIDGE, Secretary.

RANDOLPH COUNTY.

In order to comply with the requirements of the laws of the State and the regulations of the State Board of Agriculture, I herewith furnish a list of the principal crops raised in this county, together with the estimated average yield per acre for the present year, the striking characteristics of the past season and the results of the last annual fair.

The most striking characteristic of the past season was the backward, cold and unfavorable weather in the early spring. The first ten days in April were exceedingly warm and pleasant, causing the already advanced state of vegetation to put forth like magic. Wheat jointed, fruit trees in full bloom, when on the morning of the 12th day of April, the mercury dropped to six degrees below freezing, killing the fruit, and in low black ground injuring the wheat to a considerable extent. The continued coldness of the season after corn planting caused the crop to be backward in growth, and threatened a failure of that crop. The summer set in very favorably for wheat and grass and the continued warm weather during the fall fully matured the corn crop, and although some seasons may have been more favorable to some particular kind of crops, yet I do not remember a season more favorable for all kinds of crops, or that we ever had so large a yield, and prices ruled so high as in the past season.

The principal crops grown in this county are wheat, corn, oats, flax, grass and potatoes. Of these, wheat is a larger yield than usual, and of excellent quality, and a fair estimate on the yield is an average of twenty bushels per acre, which was all harvested and secured in good condition. Of varieties, the Fultz, Clawson, and Silver Chaff are taking the lead.

The oat crop promised an unusually good yield, the growth of straw being very large, and everything promised fine till within ten days of harvest, when hot, rainy weather came on, which caused rust, so the yield in bulk was cut short and the quality was inferior.

Corn constitutes an important crop in this county, as Randolph is one of the best adapted to corn growing in the State, and according to the statistics on file in the Auditor's office, the number of acres cultivated in 1881, was 48,361; yield, 1,710,410 bushels; average per acre, 34 bushels. The season of 1882 was more favorable for corn in this county than in 1881, and though the number of acres planted may not be much larger, the yield will undoubtedly be considerable larger, as last spring the farmers did not have the trouble with their seed corn that they did the year before, as then over half had to be replanted.

Owing to the unfavorable weather in the spring, there was comparatively little flax sown, and what little that was raised did not prove a financial success. Farmers have for years been reduced to raise flax for seed, the seed being sent here to dealers to loan out to the farmers on a contract to buy the crop when threshed at the highest market price, leaving the farmer the privilege to sell elsewhere if he can get a better price, but he must return his seed. This crop generally is sown on land intended to be sown with wheat in the fall, and generally pays the first time it is raised on land, but a second crop is not profitable on the same land until the ground has had many years rest.

The hay crop was an average, and was saved in good condition. The frequent rains during the season kept the pastures in fine condition all summer, and cattle generally went into winter quarters in good condition.

The potato crop was a full average, and is assuming more importance every year. It is the only root crop of note grown in this county. The Early Rose still holds a prominent place in the crop. The Peachblow is not doing as well as formerly. Snowflake and Beauty of Hebron are preferred by many. The old fashioned bugs did more damage than the Colorados.

The fruit crop was almost a general failure. Small fruits, with the exception of raspberries, did well; grapes were a fair crop, and some varieties of summer apples had a full crop, but scarcely any winter apples remained to mature on the trees. The fact is, it will be years before we can expect a full fruit crop in this county, as fully one-half the apple trees are dead from the effects of the winter two years ago.

This county was originally covered with heavy timber. It is the home of the walnut, ash, poplar, various kinds of oaks, beech, hickory, and sugar maple. The most valuable timber is getting fast cleared out, and is rapidly disappearing. Walnut logs and tops, the refuse of the past, are now eagerly sought after, and it is only a question of time when the valuable timber, once so abundant, will be extinct in this county for practical purposes, and we must soon reach the point that it will be profitable to raise timber.

The old rail fence is still the fence in common use, and, as rail timber becomes scarcer, the query naturally comes up: What will be the fence for the future? It is true that farmers have miles of Osage hedge in this county, which serves as a fence, and they are planting more every year. A new impetus was given to hedging by the introduction of a plan for wiring down the hedges at three years old, and some old hedge has been thus treated, but it yet remains to be proven whether a hedge is an economical fence. Some are building board fences, buying pine lumber for less than they can get hard lumber near home, at the mills, while others are experimenting with barb-wire.

We have over twenty toll-pikes in this county, with a regular fever for free pikes, and it will be but a few years until all the leading roads will be piked.

With some twenty-two tile factories in active operation, we stand a good chance to have, in a few years more, all our wet land underdrained. It is no longer a question, will underdraining pay? as we have abundant proof on almost every improved farm in this county, and thousands of acres of our best corn land, a few years ago would "swamp a horse."

Our county fair has truly become a county institution, although we have the usual number of old-fogy croakers, with their sneering remarks, to contend against. There is generally a cause for the sour milk in their cocoanuts, as they either failed in getting all the premiums, or had some easy place where they could bleed others without giving value received, and as a general rule they belong to that class infesting every community who have but little soul, and what they have is wrapped up in their pocket-books. Our citizens generally recognize the county fair as a permanent institution, and worthy their encouragement and support. Many look forward to it as a means of communicating with their more distant friends, as the common understanding is "we will see them at the fair." Others, more practical in their observations, are anxious to see all the new improvements that may be on exhibition. The future prospects are excellent, and the influence of the society in the development of the industries of the county is becoming more apparent every day.

September 12 to 15 was the time that the Randolph County Fair was held. The weather was fine, the attendance good and the fair a success. The number of entries fell somewhat short, but the show in the leading departments was ahead of any fair ever held in this county.

Horses are always foremost at agricultural fairs, and ours was no exception. Our horse breeders, as a general rule, endeavor to raise heavy draft horses, as more suitable for the general markets, and always find ready sale at good prices. The show of horses was fully equal to former years, and the speed ring—a necessary attachment to all successful fairs—added much to the interest of the fair. While the entries of horses in the speed classes were not numerous, the races were exciting, well contested, and a creditable display of "time" was developed. It certainly is not the intention of the managers to encourage horse racing, but there is a large proportion of the patrons of agricultural fairs that demand a certain allowance of the national sport, and to exclude racing would, to say the least, be a doubtful experiment.

We had a good show of mules, and the premiums in this class were closely contested.

The Cattle Department failed to come up in number to former years, but some fine animals were on exhibition.

In the Sheep Department there were more than double the number of entries at any former fair, and the quality was much better. During the last year many of our farmers have been improving their flocks by importing from Canada and Kentucky. There are several parties now extensively engaged in sheep raising in this county who have some very fine stock. I. J. and W. T. Farquhar, of Trenton, carried away ribbons that called for \$110 in premiums for sheep alone, while Frank Smith, N. P. Williams, and I. J. Williams, of Delaware county, came in for a share of premiums in the same class.

There never was a larger nor better display of hogs at a county fair in this part of the State than were in the pens at our last county fair, the Poland China taking the lead, which were closely followed by Berkshire, Chester Whites and Jersey Red. The premiums were divided between James A. Ross, John H. Ross, Frank Smith,

of Delaware county; Brown & Hinshaw, A. C. Green, Peter Stidham, of this county; Davis & Reynolds, of Millville, Ind.; W. A. Groves, of New Castle; A. W. Martin, of Muncie; P. E. Wentz, of Hartford City, and some others.

The poultry show was good, and considerable interest is kept up in this department.

The show in the Mechanical Department was large, and the display made by the Winchester Wagon Works deserves special notice.

The exhibition of carriages and buggies was fine, and a very attractive spot on the grounds was the agricultural implement space, which was well filled with improved machinery, the society furnishing power and shafting. We had quite a number of self-binders and other machinery in operation on the grounds. This is not so much of a manufacturing county as some of the adjoining counties, and most of the articles on exhibition in this department were entered by our enterprising implement dealers.

The Agricultural and Horticultural Departments failed to come up to our former exhibitions, as the fruit crop was an almost entire failure.

Floral Hall was well filled with by far the finest work ever put on exhibition at the county fair, especially in the Ladies' Department. But why discriminate, when the show in all was good, and everybody satisfied? Premiums paid in full, and a considerable portion of the debt of the society.

D. E. HOFFMAN, Secretary.

RUSH COUNTY.

You will find from our tabulated report our total receipts to be \$6,318.07; balance in treasury, after paying all premiums and expenses, about \$400; entries, 1,448.

In presenting this twenty-sixth annual report, some guess can be made of its financial condition and progress. Its motto has ever been anti-monopoly, the greatest good to the greatest number. The society consists of 300 stockholders. Par value of the stock, \$20; no dividends. Stockholders and their families pass free, except males over 21 years old.

Rush county, in its natural state, probably contained a solid body of as good soil as could be found in the State, and very heavily timbered by that growth indigenous to that soil. The seeming high price of lumber has induced the felling of the largest half of its best trees, yet there are many walnuts left that would readily bring \$125 per tree.

Our agriculture is diversified, ranking among the first in the production of both wheat and corn, as well as its full quota in the shipment of fat hogs and cattle. As to horses, this being the home of the Old Blue Bull, whose progeny has startled adjoining States, we have reaped the benefit of fabulous prices for many of his fast goers and retain in our midst a goodly number. The heavy draft horses are here being bred, and form an attractive feature of our show rings. Our entry exhibit shows competition lively, and, I will add, of the finest type of the various breeds of the hog and sheep families.

A competent band of music our Board has always considered a necessary adjunct to a well regulated county fair. And why? Because it is an entertaining and attractive feature, and refining in its nature.

The experimental school for the farmer and his family is the field, orchard and garden; his hearthstone advisers are our best agricultural journals; the county fair his commencement week, where badges of merit are unstintingly awarded and where the gambler and the drunkard are kept without the gates.

A marked improvement in agriculture is continuous. Every improved implement for breaking and pulverizing the soil is put to use, and from some cause, forty bushels of wheat per acre makes no more marvel than did twenty a few years ago. The statistics of this year's crops I have not at hand, but believe in wheat and corn there will be an average of the two years preceding, and in hay, over an average.

The business houses of our town are all being built in modern style. The same may be said of dwellings, both in town and country, as well as stock stables and cribs of improved styles, both for comfort and convenience.

Barbed wire is now the fence preferred, and when well put up seems to give satisfaction. The prevalent view here is that every man should fence in his own stock, and a penalty be imposed for the trespass of all others.

A rigid dog law is demanded; the present would be more popular if better executed. Sheep need protection, or their raising will be more or less abandoned. Every man is interested in cheap clothing and cheap meat, which certainly can not be accomplished in the slaughter by dogs of the flocks that produce both, whilst the dog in most instances is a bill of expense to the owner, without corresponding benefits.

I would again suggest that agricultural boards study well the varied interest by which they are surrounded, and, asking encouragement at their hands, that each industry may be stimulated in their line to swell the common interest in the various displays at our annual exhibitions. In a community where much capital and enterprise is invested in breeding and training horses of speed and action, we are not prepared to advise exclusion from the speed ring with proper premiums, in comparison with other industries, but do not think it expedient that such sized premiums should be offered that would induce veteran horses from their proper circuit to compete, thereby discouraging the very object that a county fair should stimulate, and place it in a favorable attitude to be swallowed up, or at least changed from the original object of its organization. Respectfully,

L. LINK, Secretary.

SHELBY COUNTY.

The ninth annual fair of the Shelby County Joint Stock Agricultural Association, for 1882, was held near Shelbyville, September 5 to 9. All of our former fairs have been successful in every particular, and our ninth was not an exception. The weather was delightful and the attendance good.

Every department was well filled with excellent material for a first-class exhibition.

Our receipts and entries were greater than at any of our former fairs. Our surplus, after paying all premiums in full and all expenses of fair, amounted to \$753.

A. J. GORGAS, Secretary.

STEBEN COUNTY.

The Steuben County Agricultural Association held their seventh annual fair on their grounds, at Angola, on October 10, 11, 12 and 13. The fair was a success. Fine display in all departments, especially in Agricultural Hall and Mechanics' Hall. The weather was fine, except the last day of the fair. Of course, we can not skip all the rain, and had our usual quantity of it.

The condition of agriculture in our county is good. Our farmers are a reading class, and are fully up with the times. Nearly all our farmers take one or more agricultural papers. We have three good county papers.

Our wheat was nearly a full crop. Immense corn crop. Hay and oats good. Potatoes good. Apples few.

BEN. F. DAWSON, Secretary.

ST. JOSEPH COUNTY.

The first annual fair of the Northern Indiana Agricultural Society was held on their grounds, midway between South Bend and Mishawaka, on the 2d, 3d, 4th, 5th, 6th and 7th of October. This being the first fair held in our county in ten years, much interest was manifested by all. Our grounds are finely located, and easy of access, being reached both by railroad and steamboat. The exhibition, on the whole, was a success. The entries in all departments were good. Our half mile track is pronounced by horsemen to be second to none in the State.

Our receipts were	\$7,245 95
Expenses	5,616 20

Leaving a surplus of	\$1,629 75
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We think this a good showing for a beginning. This, together with the general satisfaction expressed by all, makes our prospect for the next fair flattering.

The condition of agriculture in our county is not up to the usual average.

Wheat and hay about two-thirds of a crop.

Fruit almost a total failure.

Corn an average crop.

Oats and potato crops fair.

The present prospect for wheat good.

C. G. TOWLE, Secretary.

TIPPECANOE COUNTY.

The Tippecanoe County Agricultural Association held its sixteenth annual fair, at Lafayette, September 4 to 9, inclusive. The attendance was very large, and the exhibition was the best ever held on its grounds. The live stock departments, especially cattle, hogs and sheep, were very full, and probably there were never so many fine beef-breeding cattle in the ring before at one time. The exhibit in all the departments was very good; in fact, the agricultural exhibit was the best we have had for several years.

The condition of agriculture is good. Owing to the late, wet spring our corn crop is short—will be probably three-fourths of a crop. Wheat, oats and hay are very good.

CHAS. H. WALLACE, Secretary.

TIPTON COUNTY.

We realize the great disadvantage we are compelled to labor under in making our report to your honorable body, inasmuch as the statistical report is incomplete.

The soil of this county is a deep, black loam, and very productive when put in a state of cultivation. Many of the first settlers of this county, who were induced to purchase the lands owing to the very fine timber which abounded in great abundance, were opposed to drainage and making permanent improvements, but preferred to eke out a rather poor living by selling their fine timber at poor prices; but, as time passed, and their timber became exhausted, they were compelled to turn their attention to something else, and, we are glad to say, that the timber being in a great measure gone, and as they prized their lands *only* for the timber, they were willing to take fair prices for their lands, and had no trouble in disposing of them to farmers who wanted the lands for the sake of the excellent soil, and to put them in a high state of cultivation. Thus, those out of the way who had retarded the growth of our county, our farmers turned their attention to drainage, and, as the fruits of this new order of things, we now have 184 public ditches, extending a distance of 705 miles. Most of these ditches are large outlets, some being thirty feet wide; and we also have not less than 1,400 miles of tile drains. With all this drainage came better crops, and with better crops mortgages disappeared, frame and brick houses took the place of log houses, and frame barns took the place of the cold, log stables that were no protection to stock.

Our county is chiefly devoted to agriculture, while grazing is successfully carried on by some of our farmers.

Wheat, which, owing to our soil, did not produce well in the past, has been a very successful crop for the past four years. Rotating crops is being adopted with success.

Improved agricultural machinery and implements are being adopted by our farmers.

There is yet plenty of timber in our county to meet the present demand for legitimate farm use, therefore there is but little fencing except of the worm or rail fencing, which is kept in good repair. The roads, which have been one of the greatest drawbacks to the county, are fast being turned into free turnpike roads. A number have been built, and others are now under contract to be built in the near future, which will prove a benefit to the farmer.

The dog law passed by the last Legislature, as also the road law, do not seem to correct the evil sought, but rather to augment it, and there is a general feeling that they should be repealed.

The people of this county are taking more interest in their annual fair, as was shown by the marked success of our last exhibition, which was held on the company's ground, at Tipton, the county seat of this county.

The Ladies' Department, which has always been a drag, was made successful by giving the ladies complete control of the department.

The horse show far surpassed any former exhibition in numbers and quality.

The exhibition of sheep was not large, but enough to show that there is a steady advance in long wool.

The hog show was not quite up to some exhibitions held in the county, but this was owing to the ravages of that much dreaded disease, cholera, which has been raging during the year.

The cattle on exhibition was fully up to the average in all classes, and surpassing in Jerseys, which are rapidly being introduced in this county.

The poultry show was not an average.

The mechanical display exceeded, by far, any former exhibition. Several threshers and engines, and a fine rotary engine were on exhibition, which attracted a great deal of attention, especially in the grand display, not only running itself, but hauling other farm machinery and implements.

The fruit display was small, owing to the short crop.

The Agricultural Hall was well filled; the display was never better, and in many respects not so good.

The society pronounce the fair of 1882 the most successful ever held in the county, as all premiums were paid in full, and even a balance left in the treasury, without admitting to the grounds any gambling or drinking dens.

WM. BARLOW, Secretary.

VIGO COUNTY.

In compliance with the law of the State, the society has to make an annual report of the year's business. In speaking of the laws, I wish to call the attention of the incoming Board of Directors to the following in the Revised Statutes:

LICENSES—FOR WHAT AND AMOUNT TO PAY.

SECTION 5269 R. S. For license to keep a ferry, there shall be paid to the proper County Treasurer not less than three dollars, nor more than fifty dollars.

For traveling merchants and peddlers, who are not residents of this State, to vend foreign merchandise, five dollars, where the capital employed does not exceed one thousand dollars; seven dollars and fifty cents, for any amount over one thousand and not exceeding two thousand dollars; ten dollars, for any amount over two thousand dollars, and not exceeding five thousand dollars; and twenty dollars, for any amount exceeding five thousand, to be paid in each county where they shall offer for sale any such merchandise, except tea and coffee. To exhibit for pay, any caravan, circus, rope or wire dancing, legerdemain, ventriloquism, puppet show, concert, theatrical performance, or any other exhibition of whatever name or description, whether by traveling or stationary troupe or troupes, individually or collectively, not less than five dollars nor more than twenty-five dollars, for each separate performance. To carry on the business of stock and exchange broker, in buying or selling stock, bank notes, gold, silver, promissory notes, and bills of exchange, whether by individuals or corporations, one hundred dollars for one year: *Provided*, All actions and right of actions, now pending under provisions of the act to which this is an amendment, may be prosecuted under the provisions of the law in force at the time this act took effect.

MONEY GOES TO AGRICULTURAL SOCIETY.

SECTION 5270. The money arising from the exhibitions mentioned in the foregoing section shall be paid over by the County Treasurers of their respective counties, to the agricultural society of the county where collected: *Provided*, that in counties where there are no agricultural societies organized, the Treasurer thereof shall pay the same thus collected into the County Treasury.

All the license fund the society has ever received from the above has been from circuses, amounting this year to \$125, while we should have quite an income if the law was enforced. The shows take a large amount of money from the people; let them leave what the law allows—it will not keep them from coming—and the money received will be of great benefit to us, as we need it badly. The society is \$1,500 in debt, and we need a new building on the fair grounds, situated two miles east of the city, on the National Road and on the Vandalia railroad. The latter has a side-track at the grounds, for the convenience of those visiting the grounds; also, exhibitors of stock can load and unload their stock, etc.

I wish, on behalf of the Board, to thank the business men of our beautiful city for their kindness in closing their places of business and attending the fair, also allowing those laboring for them. It was a great benefit to the fair and will assist the Board in the future.

The society paid all bills and premiums in full, and had a balance on hand. That is glory enough for one year.

As regards the Directors, they do not receive one cent salary, except the Secretary. They are working to build up the fair, believing that we can have as good a fair here as any place in the State.

A short time since we had no fine stock in the county, and now we have several herds of fine Jersey cattle; and I do not know of a place that needs a herd of beef-breeding cattle more than this county, as the stock is generally poor, and the

farmers don't seem to take hold of the fine stock. It does not cost any more to keep good stock than poor, and good stock always sells at good prices. But there is going to be a change for the better.

There are several very fine stallions in the county, and the business men are buying farms and improving them, and improving the horses.

We are also improving the roads by graveling. Let the good work go on.

The crops of last season have been fine.

Corn predominates in this county; wheat next, and hay next.

One farmer raised 65,000 bushels of corn on his farm. He is a new beginner, so will have to excuse him this time.

All the manufactories have been overrun with orders, and are behind in filling them.

All the business men are happy over the year's work.

The wheat looks a little bad at present, but may come out all "O. K." in the spring.

The fences consist of hedges, rail, planks and barbed wire, which seems to be coming in favor.

Hogs and sheep are very scarce.

The farmers are about equally divided as to fencing stock.

The Live Stock Department at the fair was the best we had, while the other departments were not well filled, but fine.

The Women's Department was well filled, and attracted a large crowd. This department will be one of the main features of the fair, as the ladies have taken hold in earnest, and are already making articles to exhibit at the next fair.

The society pays out \$3,000 to \$5,000 yearly, that should be taken by the farmers in this county. If they would take more interest in fairs, and watch the progress in fine stock and improved ways for farming, it could not help but be of great interest and benefit to them, and the premiums offered would go quite a ways in paying for good stock.

Let all try and see what we can do for the next fair.

Respectfully submitted,

EOBERT CURTIS, Secretary.

WABASH COUNTY.

The thirtieth annual exhibition of the Wabash County Agricultural Society was held on the fair grounds in the city of Wabash, September 12, 13, 14 and 15, 1882, and was a grand success in every way. Nothing occurred during the week to mar the pleasure of visitors.

The exhibits in every department was better than any season passed, and the fair was a financial success in every way. Our premium list was much larger than last year and brought out a much better exhibit.

The society improved the street and sidewalks in front of their property in the city limits, amounting to between six and seven hundred dollars.

Wheat.—Crop was not a full yield, and a great many farmers had part of their wheat damaged by wet weather.

Corn.—Crop was the largest the county has known for years past, although the forepart of the season looked very much like there would be a failure.

Oats.—Crop was almost an entire failure.

Hay.—The largest crop for some seasons and of excellent quality.

GEORGE W. PAULING, Secretary.

WARRICK COUNTY.

The Warrick County Agricultural Society held its annual meeting on September 25 to 29, 1882, on the fair ground near Boonville. The grounds inclosed contain about twenty acres, well shaded, and located on the railroad, in close proximity to the county seat.

The entries were large and a fine show in each class.

The exhibition in the cattle line was much better than usual.

Horses and mules above an average.

The financial interest of our county is improving, which is due principally to the farmers in using more fertilizers and breeding a better class of stock, as is shown by the more substantial buildings and other improvements.

Agricultural products were, this year, not all due to the season, but to the more scientific farming.

The county has produced near 1,000,000 bushels of wheat this year, at an average of ninety cents per bushel.

The corn crop was from one-fourth to one-third larger than usual.

The fruit crop was excellent. Over 6,000 barrels of apples were shipped from Boonville.

In many places the potato crop yielded from 150 to 200 bushels per acre.

As to the kind of farming, the grain interest predominates. Yet the grazing interest is increasing as the county improves.

Underground draining is largely on the increase. The tile factories recently started in our county prove that it is a success.

There is plenty of timber in our county, the best quality of poplar, walnut, white oak, hickory, beech, maple and various other kinds.

Coal abounds in most all parts of the county, large quantities being shipped to Evansville and other cities.

Stone for building purposes in large quantities.

Our educational interests are largely on the increase. New and well improved buildings are to be found in most every township of the county.

Respectfully submitted,

F. M. HOWARD, President.

S. W. TAYLOR, Secretary.

WARREN COUNTY.

The ninth annual fair of the Warren County Agricultural Joint Stock Company was held on the company's grounds, near West Lebanon, on September 11-16, 1882, and owing to neighboring fairs the same week, and other causes, the success was only medium in regard to number of entries and attendance. The company, however, is solvent, has always paid a hundred cents on the dollar, and will continue to hold fairs.

The condition of agriculture in this county is rapidly improving. There is a boom in under-draining and better methods of farming. Our wheat and oat crops were good; corn medium, on account of too much rain; potatoes, fair; fruit, light, but grass immense. Considerable attention paid to raising horses, principally draft. Some sheep raised, but the principal stock raising is cattle and hogs. Cattle plenty and in fine condition. Hogs not a large crop, and some diseased.

Our roads are nothing to brag of. We have a fine soil for raising crops, but poor for making roads. We have plenty of gravel in the eastern portion of the county, where we are using some of it to advantage, but it is remote from a large portion of the county.

H. B. FLESHER, Secretary, *pro tem*.

WASHINGTON COUNTY.

The Washington County Agricultural, Horticultural, Mechanical and Industrial Association held its second annual fair, on their grounds at Salem, August 31 to September 2, 1882, under adverse circumstances, on account of continuous rain during the fair, but, being well advertised and having a liberal premium list, all things considered, it was a creditable success in show as well as financially, there being a net profit to the association of \$520 after paying over \$2,000 in premiums and all expenses, the profit being applied to our funded debt on grounds and improvements. We had 1,209 entries in all departments against 1,081 for last year, there being 311 entries of horses alone. The show of draught, light harness and general purpose horses has been seldom excelled anywhere, while our show of cattle, sheep, hogs and poultry was not as good in either number or quality as it should have been. In each of those classes, however, it was an improvement on last year's exhibition, and we feel encouraged to believe that it will improve from year to year. Already our more enterprising farmers are taking hold of breeding and raising better stock than heretofore, with satisfactory and encouraging results. This is notably shown by our last awards on sheep, there being about seventy-five per cent. of them given to sheep in the county, while at the preceding exhibition about the same percentage went out of the county, without any complaint from any quarter but what both awards were equally fair.

Our general exhibition of farm products was quite creditable and an improvement on last year, while our fruit exhibition was not so satisfactory on account, perhaps, of the early date of the fair. But we are learning by experience, and have fixed the date of our next fair later, being September 10 to 14, with a sale day on

Saturday, added as a feature to distribute fine stock, grain, etc. While our general premiums have been small, comparatively, as an inducement to exhibitors, we charge no entry fees on general classes, but deduct a small percentage from the premiums, and we find the result satisfactory.

In our speed rings we have made our premiums large, comparatively, and charged entry fees of ten per cent. of our purses, and required five entries, and the result has been we have had among the best horses in the State at our fairs, giving good exhibitions of speed and at a less proportion of cost than other classes. Our experience has been that it is important to give liberal premiums and have good exhibitions in the speed department as part of a good fair. We might appropriately add that we deem it equally important to guard against speed exhibitions degenerating into mere horse racing, and we think too much caution can scarcely be exercised to avoid giving encouragement to betting on the same. Let the horse go, by all means, all he can, but don't gamble on him. They should be treated as a part of a well arranged show, but not as the predominant and leading feature. Our fair ground is especially adapted to its purposes, possessing as many natural advantages in location, shape and general lay of grounds, as well as an abundance of water, as any ground in the State, while its track is second to none in the State. In this county farming interests are pretty equally divided between grain growing, grazing and the production of fruits.

Our creek and small river valleys are inexhaustible for corn, while much of the hilly land produces it in paying quantities where intelligently cultivated. Our limestone hills produce blue grass spontaneously, unexcelled by any place this side of the blue grass regions of Kentucky, where the undergrowth is kept cut down and it is given a chance to grow, while our knobs and table lands produce abundantly in quality and flavor, fruits equal to any territory in the State.

The use of fertilizers, especially for wheat, is becoming more general and with the most gratifying results. Our average production of wheat with their use will range from eighteen to twenty-five bushels to the acre, while without them it was from eight to fifteen. This kind of production affords a solid argument to those who cultivate an acquaintance with experience. It is not, perhaps, more marked either by its benefits than many other products when subjected to a similar treatment of well chosen fertilizers.

In this part of the State the improvement generally in buildings is perhaps less marked than in other localities, yet one is impressed by comparison of the present condition with a few years ago that a large majority of our people have learned the important lesson, that to build up neat and comfortable houses in which to enjoy life and the fruits of their toil, is to add to their material prosperity and happiness. In a great measure, well arranged frame cottages and frame barns have supplanted the log huts and stables of yore. They have learned, to a great extent, that it pays to house stock from the storms of our variable winters. Of course all can not hope to have all the modern conveniences in their farm arrangement at once, but all can start in the right direction, and improve from time to time, till they approximate success, with the well defined aim in view to make their calling more honorable, more desirable, and more remunerative.

Drainage in this section was a stranger until within the last few years, now it is coming into general use for draining low and wet lands. Such as have been waste have become, by the use of tiling, our most fertile lands, still, its introduction and use is only in its infancy, while its value is undisputed.

Timber culture is almost, if not entirely neglected in this part of the State. As a rule, we are still getting rid of what we have, instead of producing more. It is a sad commentary on our intelligence, that we devote our energies to the destruction of our fine forests, while we fail to do any thing to replace them for future use. We look back to the old lanes and passways through our farms, and see many of them overgrown with useless undergrowth, and fail to see that if twenty-five years ago there had been planted a walnut every fifteen feet along them, and cared for but little, one-half to three-fourths of the timber now cut and marketed would pay for the land, and have a handsome margin of good timber to devote to other purposes. The culture of good timber ought by all means to be encouraged, especially along our highways, where it would interfere but little with production, and add greatly to the beauty of scenery.

Fencing is a subject that must, in the near future, command our serious attention. There must be a change of material used very soon, or at least of the manner of using it. The days of the old rail fences are well nigh numbered. In this part of the State, where stone is so abundant, it will doubtless supply the place of timber fences almost altogether in the next generation, while plank and wire must supplant the rails where stone is scarce or inconvenient. We must reduce the quantity of timber used and wasted, and produce more, or in the near future become importers of the material our early settlers devoted so much of the best energies of their lives to destroy. The improvement in stone fences in this locality is plain, while the cost is not materially increased. Our experience in building them has made them vastly better; in place of crooked piles of stone on top of the ground, we have them generally straight, symmetrically formed, and dug into the ground enough to give them permanence in foundation, thus settling the fence question, where they are well built. In this connection we desire to add our belief that the subject of fencing stock "in" ought to be agitated by agricultural societies generally, in order to get the masses to take hold of the subject, and understand our unnecessary and enormous extravagance in fences.

The answer to the question, "Shall we fence stock in or out?" is demonstrated by practical experience, within the scope of the observation of all, and consists in the fact that it will take perhaps less than one-fourth the fences to fence our own stock in than it does to fence everybody else's stock out. The subject ought to be regulated by a simple statute requiring the owners of stock to provide reasonable inclosures for them, or herdsmen to care for it on uninclosed lands. But the masses must be convinced, by agitation, of the value of the system, before legislation can either be accomplished or enforced.

Our roads are perhaps improved to some extent, compared with a few years ago, but are still lamentably deficient, in view of their importance in augmenting the value and usefulness of our farms, many of them being constructed over the roughest grounds, against all reason, in order to accommodate some individuals, while

In reason, no country can afford to refuse to dedicate enough eligible ground to make good highways. While it requires great labor and expense to make good roads, there is no public expenditure that yields a larger percentage of benefits to the general public than that expended for that purpose, and the better the roads the greater the benefits, and that, too, to the farmer in a larger measure than others. A farmer had almost as well not have anything to sell, as to be unable to get it to market one-third to half the year. Macadamized roads ought to be encouraged by every conceivable means, connecting every considerable town and village in the State.

Our dog laws, while perhaps absolutely necessary to prevent rearing and harboring of dogs, destroying our sheep culture, are not as effective as they should be in preventing the keeping of worthless dogs. The tag system, if continued, as it becomes older, and is better enforced, may become more effective. But we are inclined to the opinion that our statute should declare them property, tax them high by the head, as a police regulation; require an oath to the Assessor, each year, that all dogs owned or harbored have been listed, and an oath by the Assessor that he has sworn the party to his affidavit, and an authority to all; and the duty imposed upon Constables to destroy all unknown strays or others, not listed, nor under the care or control of some one who declares his purpose to list the same for taxation within thirty days.

The benefits of statistics can not be successfully disputed, but the plan best adapted to get them before the public in a shape to command their attention is one of greater difficulty. Such statistical information as is published by the State Board of Agriculture is important, and should, perhaps, be distributed, through the Township Trustees and other officers each year, to a limited extent, free; and all county and State papers ought to be in some way encouraged to make brief reference to its tables from time to time, and provide by law for the sale each year of a limited number at net cost of printing them. The information contained in them is worth to any farmer certainly that amount. The question is sometimes asked, "Why does not farming pay?" "Why does it not yield a percentage of profit equal to other business?" Our answer is that it does pay equal to any other safe business, when the same amount of care, labor and intelligence is applied to it. It, like any other business or profession, must have prudent, sensible management and direction, or it can't succeed. You can't properly care for either by spending the larger part of your time away from them.

The complaint is frequently made, "My land is poor, I am unable to buy fertilizers; can't make rye pay, clover freezes out, both are uncertain crops; it takes all my time to raise a crop of corn to live on and fatten my meat, and I can't make anything." You ask, "How many acres of corn do you attend yourself, and how much do you get off of it?" and he answers, "From sixteen to twenty acres, and get about fifteen bushels to the acre."

The wonder is that he gets any corn to live on, and the truth is he doesn't raise rye and improve his land with it, because he doesn't try faithfully and sensibly—doesn't put enough seed on—doesn't prepare his ground properly, or it would pay, even on poor soil, and the same is true of clover. With a perseverance in and a

continuation of the two crops, his land won't stay poor; or if he is in a hurry to enrich, he can, after the first year, sell enough rye and clover seed from five acres of each to buy fertilizer to enrich five acres more for other crops, and so on each year, getting better year by year. Put back on the ground, in manure or fertilizers, a fair compensation for the depletion of the crop each year, and you can count on gathering each year a paying crop with as much certainty as you can count on other business.

I met a neighbor the other day who takes care of his manure, applies it and fertilizers regularly. When asked what success he had with a fine Pennsylvania yellow corn, he said, "Very good; this year I had ten acres in; got 600 bushels—400 of seed and 200 of culls, and I have just sold 300 bushels of the seed, delivered at the depot, for \$300." We use this fact, that occurred within our knowledge, to prove that it does pay to apply, with judgment, the requisite labor to the business, and that the business will yield a paying reward for the same.

While trying to avoid using too much space we have been compelled to speak of many things in an unsatisfactory manner. We recognize that even our brief reference to the many topics considered, has added considerable length to this report. Our only apology is that we have only endeavored, from our recollection of experience and observation, to contribute our mite in the hope of benefiting the agricultural interests of the State. In conclusion we only ask such consideration for our crude ideas as they are justly entitled to, believing that an interchange of ideas on general agricultural topics, candidly expressed, will be conducive to beneficial results.

FRED L. CROW, Secretary.

WELLS COUNTY.

The Wells County Agricultural Society held their sixteenth annual fair on the grounds usually occupied by the society, near Bluffton, on September 19, 20, 21 and 22, 1882.

We were under the impression during the summer, and from the prospective outlook, expected to make the best report that had been made for some years past, but owing to the fair being held in Huntington county the same week, and the Fort Wayne Fair the week after, and the farmers being busy seeding, caused us to work under adverse circumstances, but, nevertheless, we paid our premiums with a better *pro rata* per cent. than the year before. We paid seventy per cent. The departments were well filled.

Our receipts for this year were	\$1,394 95
Expenditures	1,239 59
Making a balance of	\$155 36

Our cattle show was very good.

The Horse Department was about as usual.

The Swine Department was good, but not equal to last year.

The Sheep Department about the same as last year.

Our specimens of corn, wheat, potatoes and other vegetables were very poor, but our farmers do not take the interest in this department they should.

The Floral Hall, as usual, was well filled with the nicest of fabrics made by our ladies, who always have the best filled department on the ground.

CROPS.

Our wheat crop this season was good, and averaged from eighteen to twenty bushels per acre.

Our corn crop good. Some above the average.

Potatoes.—An extra good crop.

Hay.—A good crop.

Oats.—Good crop.

Our fall wheat crop looks well.

DRAINAGE.

Our farmers are making good progress in the way of drainage, that is, open drainage and tile. The following figures will show the progress of drainage in the past two years:

In 1881 there were expended in construction of open drainage about . .	\$10,500 00
In 1882 there were expended in construction of open drainage	21,499 00
And in location of open drainage.	2,584 00

This is a good showing in the way of drainage.

Roads.—We are having a great improvement in our roads in the last year. We have expended, the present season, on gravel roads, \$73,597, and the good work is still progressing.

JAS. A. WILEY, Secretary.

WHITLEY COUNTY.

In submitting my annual statement of the condition of the Whitley County Joint Stock Agricultural Association, for the year 1882, I am led to reiterate the old idea, that it was the same populace which strewed His pathway with palm branches, and cried, "Crucify Him." I am led to the making of the above statement by reason of the fact that our fair was not financially a success. I propose to give my views as to the reason thereof, in the hope that some one of experience in such matters may show the way out of our difficulties.

The rain falls upon the just and the unjust; and saint and sinner side by side trudge along the dusty highways of life. But saint and sinner don't get along well together. The saint is too much an autocrat; the sinner too much a nihilist. These factors, in human life, cause all its machinery to jar and creak. Coming into an agricultural association it does the same thing; at least such has been my

experience. In the community are a great number of men who only attend fairs for the amusements there to be found. There is another class who will not come, or let their wives, children, sisters, cousins and aunts come, if there be anything in the shape of chance or dissipation upon the grounds. The golden mean I have been unable to find. Who shall be the man to please the public in these annual displays? This year we gave a highly moral entertainment, and the crowd stayed down town and watched the evolutions of the soldiers in their annual reunion, and quaffed lager beer with the heroes of Shiloh. The result was a financial failure for our fair.

I have found another cause to militate against our success, and that is—we being a corporation—the ill-founded belief that it is a money making scheme. I know nothing of the state of other societies, but, looking out upon my little world, I am thoroughly convinced that continuous success will not be assured to us until the Board of Commissioners shall buy our grounds, and the people of the county shall feel that whatever success shall attend the annual fairs, will accrue to the benefit of the whole county. I am not much in favor of a paternal government; but, as the prosperity and well being of every people depends upon the thrift of its agriculturists, I am fully persuaded that a few years will show the necessity and advantage of each county in the State supporting an agricultural association. I have made my lament, and I have done.

Wheat was nearly an average crop this year.

Oats were magnificent, yielding about forty bushels to the acre.

Corn was very nearly an average crop.

The yield of small fruits was abundant, but apples and pears were a total failure.

Under the new drainage law of 1881 a great many ditches are being constructed. Subsoiling is still growing in favor, and tile mills are now a very profitable source of income.

I would suggest that the State Board of Agriculture urge upon the next General Assembly in this State the necessity of a radical change in the estray laws. They are now too complicated and are very much against the taker up. I would rather defend a man for murder than put a stray steer through the paces of our present law.

Sheep raising is growing in favor in this county; the dog is getting in his work. In our township we will have to put the tags up at auction if we expect to pay out sooner than five years. It ought to be a penal offense for a woman to fondle a poodle (old maids excepted), or a man to own a pup.

We have taken no steps in the line of gravel roads as yet, and the effects of our delay in this most useful improvement are beginning to be felt. Although we have the best market in Northern Indiana and pay at least five cents on the bushel more for wheat than our neighboring towns, still in the winter season the condition of our highways deters people from coming to our town. Hoping for better days, if not Eutopian ones.

THOMAS R. MARSHALL, Secretary.

BRIDGETON UNION.

The Bridgeton Union Agricultural Society, composed of the counties of Parke, Putnam, Clay and Vigo, held its twenty-first annual fair on their grounds, near Bridgeton, Parke county, commencing August 28, closing September 2. The four first days of the week were very unfavorable, raining almost the entire time, yet we had one of the best fairs that has been held on the grounds. The show in all of the departments was very good. Especially was this the case in the Agricultural and Vegetable Hall. The display would have been hard to beat at any fair. We had the best of order, the best of feeling, and the people enjoyed themselves notwithstanding the bad weather.

Financially, the fair was not up to some of the previous ones. We paid all expenses and quite liberal premiums. There has been quite a marked improvement in everything pertaining to the agricultural interest of the community, and especially so in the introduction of improved stock of all kinds. The majority of our farmers have come to the conclusion that it will not pay to keep inferior stock.

RECEIPTS AND EXPENDITURES.

Balance on hand	\$84 83
Day tickets sold	970 70
Privileges sold	344 65
Entry fees	102 80
All other sources	112 76
Total	<u>\$1,615 74</u>
Paid on premiums	\$1,160 38
General expenses	404 75
Total	<u>1,565 13</u>
Leaving a balance	\$50 61

DEMPSEY SEYBOLD.

CAMBRIDGE CITY.

The C. C. A. and T. P. Association held its 12th annual fair at the grounds of the association, on the 19th, 20th, 21st, and 22d of Sept., 1882. The attendance was large, but not what it would have been had it not rained the second and third days. Taking all in consideration, the fair was a success. All branches of the industry of the county were well represented. The display of farm live stock and dairy products were very creditable to the county. I have so often given a description of our beautiful grounds that I do not think it again necessary.

Corn, wheat, hogs, cattle, Hungarian, grass, sorghum, barley and oats, were among the principal products of the county.

The crop of 1882 averaged for wheat, 17 bushels; oats, 45 bushels, and corn, 37 bushels to the acre.

Poultry, one of the most profitable branches of industry, is very much neglected.

Fruit, very little. Old orchards all killed by the severe winter of 1880, but all replaced by new trees.

Bees receive little or no attention.

Potatoes.—This vegetable is receiving no little attention. The average yield for this year being about 60 bushels.

Dairy interest receiving more attention each year.

Farmers are giving sheep raising more attention than ever before.

Our next fair will be held Sept. 4, 5, 6 and 7, 1883.

We now return our thanks to the exhibitors of our last fair, and thank the merchants and ladies of Cambridge City and vicinity, for their untiring efforts to make the fair what it was, a success. We again ask for the same support for the next fair.

G. W. SHULTS, JR., Secretary.

DUNKIRK UNION.

The Dunkirk Union Fair Association held their fifth annual exhibition, at Dunkirk, under the most favorable circumstances this year. With no good room for complaint during our foregoing annual fairs, we can only feel too proud at the unexpected success and satisfaction with which we have been favored this year. Our unsparring efforts to render visitors comfortable, and the success with which our efforts have been crowned and realized, is surely sufficient encouragement for our officers to do even more, if possible, to place our association in reputation of being second to none. We are in Al financial condition, and with advantages well known to parties who have visited our exhibitions, it is almost needless to say, "Come again, and be made welcome and well treated."

J. THOS. PATRICK, Secretary.

EDINBURG UNION.

I herewith submit a condensed report of the Edinburg Union Agricultural Society.

Our annual fair this year was not a grand success, it having rained, more or less, all the week up to Thursday night, leaving us but two good days, which was taken advantage of by the people, we having each day the largest crowd of people that was ever on the grounds. We payed our premiums in full, as we always do, and had quite a sum left.

The Horse Department was well filled, consisting of fine stallions, brood mares, draught horses, saddle horses, harness horses, and as fine a show of speed horses as was ever seen on the grounds.

The cattle show was fine, consisting principally of Short Horns.

The Sheep and Hog Department was excellent.

The display of agricultural implements was the best that was ever on the grounds. We had everything in motion from a cutting-box to a threshing machine.

The Floral Hall, the center of attraction, was a grand show, well worth the price of admission into the grounds.

The display of farm products was never better, consisting of nearly everything raised on the farm. Corn, wheat, rye, oats, barley, potatoes, clover, grass, vegetables of all kinds, fruits, and in fact everything raised in this section of Indiana.

We have been favored with a bountiful crop of wheat and corn, the wheat averaging from 15 to 30 bushels per acre. Corn, from 30 to 90 bushels per acre. We have been blessed with fair crops of oats, barley, potatoes, and all garden products.

The condition of agriculture in this district is on the increase. We have many good farmers, as can be told by a drive through the country, and see fine brick, slate-roof buildings, board fences, fine large barns, fine stock, consisting of the very best cattle, sheep and hogs. All of our roads leading into town are pikes. We raise more wheat and corn than anything else, although cattle grazing is carried on to a great extent.

The farmers that have low ground are still continuing their good work of ditching and under draining, and the time is not far distant when this will be one of the very best farming districts in the State.

J. A. THOMPSON, JR., Secretary.

FOUNTAIN, WARREN AND VERMILLION.

The Fountain, Warren and Vermillion Agricultural Society held their twenty-third annual fair on their grounds in Covington, Ind., September 19th to 22d inclusive, and have held all of our fairs at that date, or one or two days sooner or later, so that it has held in the same week, and we have not had a failure on account of rain in all the twenty-three years.

The show of stock was the best we ever had, three fine herds of cattle competing for premiums. The balance of money left on hand was partly spent in new wells pumps and buildings. Anyone buying a family badge is a member of the society, and all money made is invested in beautifying the grounds and making improvements of different kinds.

The corn crop was an average of good years, and the wheat crop was excellent. Farmers all in good spirits, and making preparations for a big crop in 1883.

Fruit crop not so good as 1880, but better than 1881.

Oats and potatoes were raised in abundance; in fact better crops of both than were ever raised.

Two gravel roads built in Fountain county, and others on the way. The people are awakening up to the fact that we have a first-rate road law, and it will be but a few years until all three of our counties will have fine gravel roads, as the gravel is easy of access and in abundance.

New coal mines are being opened in all three counties.

Horses, cattle and hogs are the principal stock dealt in.

There was no hog cholera last year.

Our river bottoms are becoming more valuable, as the river does not interfere with the crops as formerly.

The tile factories are supplying the farms with tile as fast as they can make them. Some eighteen or twenty manufactories are now in operation.

The raising of sheep is looking up some, but is still neglected on account of the dogs.

Board and wire fences are the principal kind now built to take the place of the old rail fence.

HOMER SEWELL, Secretary.

HENRY, MADISON AND DELAWARE.

The Henry, Madison and Delaware Counties Agricultural Society held their twelfth annual fair at Middletown, Indiana, August 23, 24, 25 and 26, 1882. The weather being very fine, the attendance was large, and the receipts very flattering.

Total gate receipts	\$2,550
Premiums and expenses	1,900

Net receipts	\$650
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The net receipts have been expended by the Society in repairing and adding buildings to the grounds, to accommodate the growing demands of each succeeding fair. Since the organization of our Society, this fair has been steadily increasing in the favor of the people, and it can now be classed with the head county fairs of the State.

Officers for the ensuing year were elected December 21, 1882.

E. L. ELLIOTT, Secretary.

KNIGHTSTOWN UNION.

The Knightstown Union Agricultural Society, composed of Henry, Hancock and Rush counties, held their thirtieth annual fair the last week in August, 1882, and was a repetition of our accustomed success, although we suffered some from rains during the week.

We note great improvement and increased interest in the Mechanical Department since the introduction of power to keep them in motion. The exhibitors are now able to show the working parts of their machines, and also attract the attention of those interested in their work.

Our district is becoming famous for the production of all classes of fine-blooded and thoroughbred stock, including studs of the finest heavy-draft, speed and general purpose horses; herds of Short Horn, Jersey and Hereford cattle, with hogs and sheep of the finest and best.

The exhibition at this fair, in all the foregoing classes, were unexceptionally fine, especially in hogs, which was never larger nor superior in quality.

Our Ladies' Department, managed and controlled by them entirely, under the management of an executive committee of three of their number, still proves a perfect success, and I would recommend its introduction by all societies.

An interesting feature might be adopted by our societies which would redound to their success and be of help financially. That is, to expend some money and attention in the procuring of novel and interesting manufacturing machinery, to be put to practical work on the grounds, so that persons could see the mode in which many articles of common use are made which now can not be done unless they pay a visit to some large institution where such articles are made. Another year select some rare and interesting article, or curiosity, either scientific, artistic, or of the animal, vegetable or mineral kingdoms. Let them be alternated each year, so that visitors might come to our exhibitions feeling sure they could see something worthy of seeing, and of such a character that they would be a source of interest, information and instruction.

Crops have been very abundant in the last year, especially wheat.

Corn was cut short by late planting, but came out finely through the delay of "Jack Frost" getting along late in the fall.

Other crops were full as usual.

Hogs were not so numerous as some seasons, but they fed well and proved profitable to the producers.

Several years ago one of our tile makers thought the country was supplied with tile, and sold his plant and machinery at a sacrifice, and the same yard has been running ever since with largely increased facilities, and is not able to keep up with the demands, and the owner is now doubling its capacity, and the man who "sold out" is arranging to open a large factory next season. In the meantime many other yards have been put in operation in the territory supplied by the old one, all doing a flourishing business. I state the above facts to show that the farmers are alive to the utility of good drainage, and it pays well.

GORDON BALLARD, Secretary.

THE LAWRENCE DISTRICT.

Our fair, having outgrown our previous organization, known as the Lawrence Township Agricultural Society, and not complying with the law governing such societies, was reorganized, in June last, and is now known as the Lawrence District Fair Association, composed of Marion and adjoining counties.

Our grounds are situated at Lawrence, on the Bee Line Railroad, in the northeastern part of Marion county, convenient of access to the people of Marion, Hancock, Hamilton, Madison, Boone and Shelby counties.

This is in the midst of a very fine farming country. To the east lie the rich, level land of Hancock county, which produces large crops of wheat, corn, oats and hay; to the north and west, the diversified country along Fall creek and White

river, with its rich "sugar flats" in a high state of cultivation; and to the south, a soil adapted to a large range of crops.

Wheat, corn, oats, hay, fruits, vegetables, cattle, sheep, hogs, poultry, butter, eggs and timber are the principal agricultural products of this district.

Wheat, corn and oats do well under thorough cultivation, with use of fertilizers and rotation.

Live stock is generally healthy, and pays a fair profit. Much of the land, however, is assessed too high for grazing purposes, and this tends to lessen the amount of stock raised.

Poultry keeping, on a small scale, is remunerative.

Fruits.—Apples, pears, plums, etc., do reasonably well. Peaches are sometimes a crop, especially on seedling trees. Small fruits are raised in considerable quantities for the Indianapolis markets at paying prices.

Vegetables do remarkably well, and large quantities are marketed at Indianapolis, though sometimes the market appears to be over supplied and the prices are low.

Other Crops.—Cane growing is receiving some attention with gratifying results. Two mills for the manufacture of syrup are in successful operation in this immediate vicinity. Beets raised here have been recently analyzed and pronounced equal to those raised in California or Germany in sugar producing qualities. The medicinal herbs and sage, tobacco and willow sprouts are raised to some extent.

Condition of Agriculture.—A marked improvement in more thorough cultivation, judicious use of fertilizers and rotation of crops has taken place within a few years. More machinery is used; an increased energy and friendly emulation, brought about mainly by this and other societies, is perceptible. The increased production per acre has noticeably increased. The interest in live stock shows a commendable progress. Fine thoroughbreds and high class grades are rapidly taking the place of a low grade of crosses and scrubs. Altogether the outlook is very encouraging.

The Fair.—The second annual fair was held September 12 to 16 inclusive, and the results were very gratifying. The number of entries was more than double that of last year, the attendance large and the receipts nearly doubled. The weather was fine but dry and dusty. The show of live stock was not large, but very select. The Agricultural, Woman's and Educational Departments were especially fine. The array of articles in each is seldom excelled anywhere. In the Horticultural Department fine apples, pears, peaches, plums, grapes, plants and flowers were shown. The display of grapes was fine. Mr. S. Johnson, of Irvington, had thirteen varieties on exhibition. The Educational and Art Departments were filled with the product of home talent, and was very creditable. In the Mechanical Department, fine displays were made by Jeff. Caylor and J. T. Conde, of Indianapolis, under pavilions of their own. Most of their exhibits were sold during the fair. The receipts were sufficient to pay the premiums, all expenses, and nearly three hundred dollars on improvements.

Respectfully submitted,

W. B. FLICK, Secretary.

LOOGOOTEE DISTRICT.

Our annual fair was held September —, 1882, and in many respects was a grand success, but in others not so successful. The weather was very favorable during the whole week, and attendance large, which enabled us to pay all premiums in full as soon as awarded. We allowed no gambling, immoral shows, or intoxicating liquors on the ground, the result of which was a quiet, peaceable and very instructive gathering. The conversation of the people was of that character calculated to promote the interests of all industrial pursuits, good morals and humanity in general.

Our association now owns forty acres of well-improved ground, very beautifully arranged and inclosed, and we have in the hands of the Treasurer about \$350, and not a dollar of indebtedness.

Our exhibition this year was not as large as it has been formerly, but we think the *kinds* of all stock and articles were of a better quality than in former years. Great improvement has been made in all kinds of stock, and we think we can, to a great extent, attribute it to the fact of the successful operation of our association for the past eleven years. We are sure it is good for persons of all legitimate pursuits in life to spend a week together (uninterrupted by gamblers and whisky), to talk and reason together about improvements in all branches of business and pursuits of labor. We think our farmers in this section are paying more attention to wheat than anything else in the agricultural line. Our wheat crop was abundant this year; in fact, we were able to reap abundance of everything that was cultivated in our soil.

We think we are making a show every year in the way of all kinds of improvements; much in all kinds of buildings; some in drainage; a little in timber culture; much in fencing; less in roads, and very much in bridges. Our roads are too much neglected. We think the present road law will be an improvement on the old law when it goes into effect. The present dog law we think good, but fear that our officers will soon neglect to see that the law is enforced.

We have a soil that can be adapted successfully, we think, to almost any agricultural pursuit, and still think there is no reason why our district may not be made the home of any one whose object is the pursuit of life, liberty and happiness.

Respectfully,

C. S. Wood, President.

NEW ROSS.

The New Ross Agricultural Society is composed of Montgomery, Boone and Hendricks counties. This year we paid all premiums in full, as in former years.

All gambling devices, machines and clap-traps—their name is legion—were excluded. This caused a very perceptible falling off in the privileges sold, but it will redound to our benefit.

The general stock exhibit was smaller than usual, but much better in quality.

In the cattle display, however, we were decidedly ahead of former years. The varieties of hogs shown were Chester White and Poland China. Sheep were few in numbers, being long wooled and mutton kinds. No exhibit of poultry.

The slim stock exhibit may be attributed to the scarcity of feed, there being a general shortage, caused by the drought of 1881.

The display of agricultural products exceeded that of any former year. The same may be said of fruits and garden products.

In the Floral Hall was a very fine showing of textile fabrics, a beautiful display of flowers and artistic work, and numerous articles of a miscellaneous character, which did credit to the skillful producer.

The Mechanical Department, under the able management of John F. Peasey, Esq., was superior. A very attractive feature in this department was two trains, composed of wagons, binding reapers, wheat drills, sulky plows, wheeled cultivators, and other farm machinery, making the circuit of the speed-ring, drawn by traction engines.

Welcome the day when steam, or his subtler brother, electricity, shall take the burdens from the shoulders of both man and beast.

The crops of 1882, in this vicinity, exceeded those of 1881 fully 33½ per cent., except in clover, hay and fruit.

The live stock marketed in this district consists principally of hogs and beef cattle. Hogs, though comparatively scarce, are in very fine condition. The same may be said of beef cattle.

The prosperity of our farmers is noticeable in the substantial improvements they are making in the matter of houses, barns and other buildings.

The amount of draining done in this district during the year 1882, both of large and small drains, exceeds, by fifty per cent., that of any former year. The tile factories can not supply the demand, and wood has to be used in many instances.

Timber culture, as yet, receives no practical attention, but the people appear to be aware of the necessity of it.

Many gravel roads have been built of late years, and the people are very properly demanding "more."

The present "dog law" seems to be a good one, as it has given rise to a freer use of lead and strychnine in treatment of the canine affliction.

The founding of Normal schools in many places has secured us a better class of teachers than formerly.

Much more might be said of the nature, quality and products of our soil, the varieties of our timber, the streams, game, and other matters, but these have been treated of in former reports, and do not require repetition.

I close by wishing you a pleasant and instructive meeting, and a happy new year.

TIM. MILLER, Secretary.

NORTH EASTERN INDIANA AGRICULTURAL ASSOCIATION.

The 11th annual exhibition of this association was held on their grounds on the 2d, 3d, 4th, 5th and 6th of October, current year.

The whole number of entries, not including manufactured articles, such as agricultural implements, musical instruments, etc., was 1,800.

The display of stock of various kinds on the whole was far better than last year.

While there was less number of imported heavy draft, we had a very fine exhibition of roadsters, carriage and general purpose horses, with a very excellent showing of heavy draft. There seems to be an increasing interest and great improvement in this kind of stock. Number of entries, 126.

In the Cattle Department there was a finer display than ever of blooded stock, the Jersey, Short Horn, and Devon's seemingly taking the lead. There was also a very noticeable improvement in the other grades. Number of entries; 51 full blood and 43 graded.

We had a larger and finer display of thoroughbred sheep than ever before; in fact the great majority of sheep on exhibition were blooded. Number of entries; 70.

The display of swine was smaller than for years. The interest in that branch of stock seems decreasing; either that or the inducements to exhibit them not being large enough. Number of entries only 37.

The display in the Mechanical Department was far better than last year, there being 108 entries in that department.

The display of fruits of various kinds was very good considering the scarcity of it all through this section of the country. The number of entries was small, comparatively, only 85, but the quality was good.

In the way of textile fabrics the display was fine. While there were fewer entries, (258,) there seemed a decided improvement in the general quality and texture and fineness of the work.

The showing in Fine Arts, though not numerous, was very fine. Only 35 entries.

Financially our fair was a decided success. We reduced our indebtedness this year \$1,472.35.

The amount received for privileges, though not quite as large as last year, was good, being \$768.25. The receipts for licenses was a little larger than last year, being \$111.

We have no new buildings erected this year, but have made permanent improvements costing \$333.90.

The whole indebtedness of this association amounts to only \$866.54, less cash on hand.

Respectfully submitted,

A. R. STEVENS, Secretary.

PLAINFIELD AGRICULTURAL AND HORTICULTURAL SOCIETY.

The past has been a year of bounteous harvests in this part of the State, and while the yield of the various crops has been satisfactory and encouraging, we have also had the pleasure of enjoying reasonably good health, and have been

measurably free from disease and death amongst the domestic animals and fowls.

The frequent rains during the summer stimulated into luxuriant growth not only the noxious weed, but also the grasses, both in meadows and pasture lands; and while some fields of corn were injured somewhat by the abundance of rain, the hay crop was fine, and the pastures rarely ever better.

The Plainfield Horticultural and Agricultural Society does not hold a regular fair, with premiums offered, but holds a number of public meetings during each year, at which the various productions of the farm, orchard and garden are brought together—in their season—for public exhibition, examination and comparison, thus stimulating a zeal in the citizens, at the various points where we meet, to bring forth something worthy of exhibition. At each of these meetings the standing committees make either verbal or written reports on orchards, fruits, lots and gardens, farms and their products, live stock, poultry, etc. The society also appoints one of its members to read an essay, at each of these meetings, on some topic of interest pertaining to agriculture or horticulture. The minutes of these meetings, together with the essays, are published in our county papers.

The proceedings of the society must be recognized, as a *factor* at least, in arousing this community to an earnestness to develop more and more the resources of the county, the products of which find ready markets on the different railroad lines which traverse this section.

There has been considerable improvement in farm buildings the past year, mostly of a neat, commodious and substantial character.

The roads have not been kept in as good order as desired, owing partly to the time and manner in which the new law took effect, yet the sentiment seems to be, "retain the law until fully tested," hoping for better roads and lower taxes.

There is also a sentiment demanding that stock be "fenced in," and the dog law enforced.

The answers to the written questions were prepared by a few members of the society, at a called meeting, the blanks having come into our hands since the last regular meeting; hope they may be of some service to you at your annual meeting. We will probably be represented by a delegate.

Respectfully submitted,

WM. H. MILLS, Secretary.

SOUTH-EASTERN INDIANA.

The fourteenth annual fair of the Southeastern Indiana Agricultural Society was held on their grounds, within the corporate limits of the city of Aurora, commencing Tuesday, September 5th, and continuing five days. The opening days of the fair were not very promising of success. The officers and members of the Board of Directors were not working in their usual good harmony, the weather, at first, was very unfavorable, the attendance was slim, the entries unusually large, and no money in the treasury to pay the premiums, and for once, at least, it looked as though the "Aurora Fair" was marked for a financial failure. But *fate*, ably assisted by the indomitable will of a good President and a few spirited members of

the Board, would not have it so, and the conditions were changed into omens of success. The Directors saw that harmony was indispensable to success. The weather, at first so threatening, changed for the better, and for the last two days of the fair was all that could be desired. The attendance on Friday was very good, and Saturday being the last day, and the day the ladies were to ride, and also to compete for the special premium of \$50 for the young lady who could harness and hitch a horse to a buggy, and seat herself in the quickest time, brought out one of the largest audiences that ever assembled on the grounds. Taking into account the embarrassments the Society encountered at the opening, we are justified in saying that the Aurora Fair for 1882 was a success.

The show, in every department, was fully up to that of any previous year, while the horse and cattle show was better, and was pronounced by connoisseurs to have surpassed any exhibition of the kind heretofore given on the grounds.

The exhibit at Floral Hall was never better, and the many nice things so tastefully arranged, were the chief attractions during the fair.

The outlook for agriculturists in this county is quite promising. While it is true that the old farmers are not giving much attention to scientific methods of farming, the young men are. They are making it a study, and are keeping pace with the strides of science, by informing themselves, through agricultural papers, and by actual experiment of the best method of enriching the soil, improving the stock, preventing disease, tending and raising good fruit, and economizing time and labor.

There are numerous Grange organizations in the county, and they are well supported. Here the people come together and are instructed, in various ways, in methods of cultivating the soil. Since the organization of the first Grange in the county, there has been a deeper interest taken in farming, and good results have followed.

This county is better adapted to the culture of wheat than any other cereal, and wheat is always the staple product for the greater number of Dearborn county farmers. The acreage this year was large and the yield was good.

Hay is also a good crop in this county, and the ready market for it always found at Aurora and Lawrenceburg makes it a very desirable crop for farmers.

In the southern part of the county, and especially the "big bottoms," corn is cultivated extensively, and always commands the highest market price, owing to the great distilling interests of the county.

The outlook for the Aurora Fair is brighter than at any time since its organization. There has always been quite an interest taken in this fair by the people of Dearborn and surrounding counties. The reason may be found in the following: The grounds are pleasantly located, and are covered with a thrifty growth of sugar maple. The Amphitheater, inclosing the small show ring, and being inclosed by by the race track, is one of the most beautiful and commodious to be found in connection with any fair. It will comfortably seat 5,000 people, and when thronged with people, as it usually is the closing days of the fair, deeply interested in some show in the small ring, it makes one feel that it pays to attend the Aurora Fair. The people of Aurora and vicinity do not propose to allow the interest that has

always attached to the Aurora Fair, to abate in the least. We have felt the necessity from the first of a good race track, and the prospects are now that we will have it by the time of the next fair.

The society will expend, in enlarging the race track, and in making necessary repairs on the grounds some \$3,000, before the time of holding the next fair. And with a good race track, and a Power Hall for displaying all kinds of machinery, which we will doubtless have soon, the Aurora Fair for 1883 promises to be one that will surpass any former year. The new President and Board of Directors are working in perfect harmony, and everything possible is being done to make the Aurora Fair a still greater success.

H. B. HILL, Secretary.

SWITZERLAND AND OHIO COUNTIES.

And now, again, we report success. Our annual exhibition, September 11 to 15, 1882, was a good one, and the attendance, perhaps, was never better. The receipts exceeded expenditures some \$500. This is one of the pioneer agricultural associations of the State, having been organized October 11, 1851. During these thirty-one years her march has been steadily onward; her talisman, "Deserve Success, and Success is Assured." She has always paid her premiums promptly and in full, met every just obligation, and to-day her credit is first class. This is a desideratum to the society and a source of pride to all our people. Her moral standing is equally good, and has been established by her efforts to exclude anything of a questionable or demoralizing character from her fairs. Swindlers, humbugs, tricksters and gamblers have evidently thought this a fruitful field for their business, and they have, from time to time, offered almost fabulous prices for privileges. She has ever told them nay. The moral sentiment of the community approves the while she prides herself on her good name, and the quiet and orderly character of her annual gatherings. Her exhibitions are creditable, both in quantity and quality of articles entered. Yet we have not near so many competitors, nor that general interest in the exhibition, that formerly existed. This is occasioned by the practice of what might be denominated professional exhibitors, a class of persons living within a radius of about fifty miles, who annually visit perhaps a dozen county fairs, and some of them the State Fair. Making it a business, they spare neither time nor expense in the preparation of articles; they study to excel, using not only their own skill, but any they can command in the making and arranging of their display. Of course their articles are of superior quality, and they generally succeed in taking the awards. Amateurs find it almost impossible to successfully compete with this class of exhibitors, become discouraged and quit the field, and there is not that general interest felt in the exhibition that was aforetime, when such a large proportion of our people had a personal interest in the matter. The show may be the very best, but we are persuaded that the good results are not obtained by the community at large that would be by a more general competition and effort on the part of more people. We would not be protectionists

to the exclusion of honest competitors, from whatever source, and not wishing to discriminate against any, we have tried to regulate this and other abuses by general regulations, requiring, in certain *classes*, that the exhibitor be owner, maker or producer; in other classes, that the article be made within the year. These regulations have not had the desired effect. In some cases the unscrupulous have borrowed, purchased, or hired made; and, again, have exhibited the same articles year after year, until such articles have paid for themselves a dozen times. Of course they have been well preserved, for they well pay their keeping. We have thought that the society might place its stamp, indelibly, upon many articles that receive premiums, to the credit of exhibitors and for its own protection. We know that other fairs have suffered like imposition. If they have found an infallible remedy for this and kindred evils, please divulge to us the secret.

We think of nothing meriting remark as very extraordinary in connection with our late fair. As usual, the horse ring was the greatest attraction. The speed rings were only ordinary. Heavy draught largely represented, while the general purpose ring was fine, and is conceded on all hands to be the best and most desirable ring in the show.

Of cattle, the Short Horn is still in the lead, while the Jerseys make a good showing.

Of hogs, the Berkshire and Poland China rank first.

In sheep we notice improvement, with Oxford and South Downs, perhaps, first in rank.

Some of the preliminaries are arranged for our next fair, September 11th to 14th, 1883.

The condition of agriculture in our district, we think, upon the whole, may be considered fairly prosperous. We have quite a variety of soil and product. We have not sought round this verdant earth, but we would give it as our humble opinion that there is to be found in this district soil of unsurpassed fertility. From this we can grade away down.

The past season was generally favorable for the growth of crops. Last May an unusually severe freeze cut the wheat, then eighteen inches high, so severely that it was thought to be well nigh ruined. Some fields were plowed up and planted to corn, and more would have been but for the lateness of the season. This was fortunate, for the frosted wheat soon sent up new shoots from the root, which grew vigorously, and the harvest gave us the largest crop ever harvested in the district. The best yield of which we know was thirty-five bushels per acre. This followed a potato crop. The continued rains of the early season retarded the planting and tending of the corn crop, especially on the flat lands and creek bottoms, making the crop unusually late, but the late autumn remedied this in a great measure, giving the crop time to fully mature, and we have at least a good average crop, the loss on the flat lands being fully compensated by the greater production of hill lands. The best yield of which we hear, was 130 bushels per acre. We learn of several yields of 100 bushels per acre.

The potato crop, though somewhat injured by excessive rains, was, nevertheless, an enormous crop, and many thousands of bushels were marketed, at forty to forty-five cents per bushel, the yield, in some cases, being 200 to 250 bushels per acre. A

clover sod is considered best for this product, and, after new land, is also preferred for tobacco, as well as most other crops.

Tobacco has become one of our chief products. The crop is reported large and of fair quality. We can not speak advisedly of the profitableness of this crop this year. Very little marketed yet, and the market unsettled, in view of what Congress may or may not do with the revenue tax.

The season was favorable for grass, pasturage excellent, and the hay crop was good, though weeds grew as well as grass, and in places there was a considerable mixture of white top and timothy. That May freeze ruined almost all our fruit, which, up to that time, gave fine promise, and this was the greatest loss experienced by our people this year. The staples of our county are corn, wheat, hay, potatoes, tobacco, etc. Bone dust is used to some extent on wheat lands, but, as a fertilizer, clover is rapidly becoming the chief reliance of our farmers, being more economical in use and satisfactory in results.

Of stock raised for export, cattle and hogs predominate. One of the drawbacks to cattle raising is the inducement to veal the calves, which, at the age of five to eight weeks, are worth in the Cincinnati market from \$12 to \$16—as much and more than their value after keeping one year. The demand for cattle of all grades has been unusually active, prices high, and the stock on hand is running low.

Of hogs, also, there seems to be a scarcity. Our traders and feeders bought nearly everything purchasable that wore bristles, and at high prices. The market has suddenly declined from eight to six cents, with downward tendency. It looks just now like a bad speculation. We guess there were hogs elsewhere.

Sheep growing, we think, is slowly on the increase. The new dog law works differently in different localities. In some townships it is effective; after killing one-third of the worthless curs, there are found to be tagged three times as many dogs as were formerly taxed. In other places where the poor dog owner is numerous, the law has been made inoperative by Constables refusing to qualify, or resigning their offices, rather than engage in the hazardous business of killing the brutes, or incurring the displeasure of these property holders. Could the law have been strictly adhered to this year, we think there would have been little future difficulty in its enforcement. To say the least, it is not satisfactory.

In the matter of fencing, we have tried the various kinds. A few have made a success with hedge, but more generally it has been a failure, and no hedges are now being set. Owing to the growing scarcity of timber and the price of lumber, fences of such material are quite expensive. Barbed wire fencing is rapidly coming into use. There was a strong prejudice against this kind of fence for a time, and it was said that stock would be wonderfully injured by running against it. Such results have not followed its use. Stock very soon learn to avoid contact with it. It proves effectual in turning stock, is proof against fire, wind and floods, is cheaper, and, we think will, in the near future, be the principal fence of the country. About three-fourths of our people are farmers, and about nine-tenths of these are opposed to letting any stock run at large, and yet cattle do go wherever their owners please to let them. We know not why, unless it be that this small minority of public pasturers are more revengeful in their voting proclivities, and thus overawe our officials.

Last July a tremendous rainfall in the southern part of this district wrought sad havoc in the destruction of property, both public and private. The creeks were so swollen that the overflow destroyed crops, fences, and even buildings. Two iron bridges were washed off and wrecked, entailing a loss to Switzerland county of twenty or thirty thousand dollars. They are being rebuilt. As reasonable people, we will not complain because of losses from Providential causes, but we think there may be just grounds for the growing discontent of our people because of Criminal Court expense, three-fourths of which has its origin in the saloon business. Indiana may not favor prohibition, but we think if our people had a chance at local option the whisky seller would be *non est* in this little realm.

The new road law has not worked very satisfactory with us this year, partly, we think, because the law went into effect one year before funds were raised with which Road Superintendents were to prosecute their work. The question of more pike or gravel roads is being agitated in some localities. Thus far, roads built by private enterprise have given best satisfaction, and we doubt now that our people would cheerfully submit to direct taxation for the construction of such roads, but we venture the opinion that had our Congress, when seeking ways and means to relieve our national treasury of its vast accumulations of treasure, instead of appropriating so many millions for dams and dikes, and creeks and coves, with such doubtful benefits to the country at large, just distributed the same to all sections of the country for the construction of gravel roads and the improvement of public highways, then the benefits would have been apparent, and instead of Congress receiving the public maranatha, we would have just arose up and pronounced them blessed.

Ours is not an equable climate. The past season has been one of extraordinary humidity, while the temperature has ranged from about 4 deg. to 95 deg. Far., with frequent sudden changes. The report of our health officers shows during eight months past, that there were more than three times as many births as deaths in Switzerland county, and about twice as many births as deaths in Ohio county. This showing would certainly indicate an increase in population. But the restless Hoosier keeps moving, going west, hunting that land of exuberance where the crops fail not nor the land wears out. Sometimes they return, not having found their Utopia, but many are lost to us, and numerically our population remains about the same. Our schools are prosperous, our moral and religious institutions in healthy condition, our markets are good and there is employment for all who will seek it. Taken all in all, our country may have its disadvantages as well as its advantages. Still we love our country, we love its people, we abide by her laws and support her government, and here we choose to remain.

WM. H. MADISON.

UNION AGRICULTURAL AND MECHANICAL ASSOCIATION.

Union Agricultural and Mechanical Association, of Union City, Ind., held their thirteenth annual fair, commencing September 26 and ending September 29, 1882.

The number of entries was not so large as in former years, yet every class was well represented.

The display of farm and garden products was well represented.

The display of stock of all kinds, as to quality, was good.

The display in the Mechanical Department was fine.

In the Fruit Department the exhibit was excellent, both as to quality and variety, but the fruit crop in this vicinity was light compared with former years.

The Floral Hall was very well represented, an appearance which reflected great credit upon all parties concerned.

The society's grounds are situated one mile from the city, on a beautiful site, with never-failing wells of water, plenty of shade and a good half-mile track, and have plenty of stalls for all kinds of stock, and ample provision is made every year for feed and boarding on the ground at fair rates.

The condition of our organization is good and bids fair for success.

The condition of agriculture in our district is prosperous and progressive. Our farmers are taking advantage of the best means of cultivating the soil.

Our wheat crop was fair; the quality very good.

The corn crop was good; the quality above the average.

Oats were fair.

Hay was over an average.

Vegetables of all kinds were good, and fully up to the average.

Our crops, taken as a whole, have been very satisfactory.

Our fair is now recognized as one of the best in the State. We confidently expect the next fair to be the best we have ever had.

I. G. STALL, Secretary.

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA—1882.

NAMES OF SOCIETIES.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Indiana State Board of Agriculture	L. B. Custer	Princeton	Alex. Horon	Indianapolis.
Bartholomew County Agricultural Society	J. G. Schwartzkopf	Columbus	Richard Thomas	Columbus.
Boone County Agricultural Society	John M. Ball	Lebanon	Jacob S. Cobb	Lebanon.
Blackford County A. H. and M. Ass'n	George Zinn	Logansport	John Noonan	Hartford City.
Cass County Agricultural Society	James M. Hoskin	Brazil	D. M. Tomlinson	Logansport.
Clay County Agricultural Association	James Carr	Charleston	E. C. Kilner	Brazil.
Clark County Central Association	E. D. Bannister	Lawrenceburg	Dennis F. Willey	Charleston.
Dearborn County Agricultural Ass'n	W. W. Hamilton	Greensburg	Will. K. O'Brien	Lawrenceburg.
Decatur County Agricultural Society	J. M. Graham	Muncie	Cortez Ewing	Greensburg.
Delaware County A. and M. Society	Albert Osborn	Goshen	Frank Ellis	Muncie.
Elkhart County Agricultural Society	A. F. Beckett	Everton	J. W. Irwin	Goshen.
Fayette County A. and M. Association	N. A. McClung	Rochester	A. B. Claypool	Connersville.
Fulton County Joint Stock A. and M. So.	W. M. Cockerum	Marion	Sidney R. Moore	Rochester.
Gibson County Hort. and Ag'l Society	Jasper A. Gauntt	Marion	S. C. Strain	Marion.
Grant County Ag'l and Stock Society	J. L. Osborn	Westfield	D. S. Hogg	Marion.
Greene County Ag'l Society	L. B. Tomlinson	Corydon	W. Schultz	Union.
Hamilton County Ag'l and Fair Ass'n	John I. Sieg	New Castle	W. C. Vance	Noblesville.
Harrison County Ag'l Society	John R. Peed	Kokomo	C. S. Hudson	Corydon.
Henry County Ag'l Society	David Smith	Huntington	Wm. W. Cotteral	New Castle.
Howard County Ag'l Society	W. A. Jones	Brownstown	A. N. T. Hunt	Kokomo.
Huntington County Ag'l Society	John Scott	Remick	Levi T. Bueby	Huntington.
Jackson County Ag'l Society	George H. Brown	Portland	J. H. M. Beck	Brownstown.
Jasper County Ag'l Society	James Votaw	North Vernon	Harace R. James	Remick.
Jay County Ag'l Society	V. C. Meloy	Franklin	George Burk	Portland.
Jennings County J. S. and Ag'l Society	I. M. Thompson	Vincennes	Charles D. Shank	North Vernon.
Johnson County Fair Ass'n	H. A. Fullaker	White Pigeon, Mich.	L. U. Doney	Franklin.
Knox County A. and M. Society	John McDonald	Oakwood	Gerard Reiter	Vincennes.
Lagrange County Ag'l Society	L. S. Field	Le Roy	F. D. Mallett	Vincennes.
Laporte County Ag'l Society	H. R. Ward		George C. Dierland	Laporte.
Lake County Ag'l Society			George I. Mallett	Crown Point.

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA—Continued.

NAMES OF SOCIETIES.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Madison County J. S. and Ag'l Society.	John P. Barnes.	Anderson	C. K. McCullough.	Anderson.
Mariam County Ag'l and Hort. Society.	Sylvester Johnson.	Irvington	J. J. W. Billingsley.	Indianapolis.
Miami County Fair Ass'n.	Godleb Conradt.	Peru	J. T. Stevens.	Peru.
Montgomery County Ag'l Society.	J. N. Davidson.	Whitesville	F. L. Snyder.	Crawfordsville.
Morgan County J. S. and Ag'l Ass'n.	Lafayette Sims.	Martinsville	H. A. Smock.	Martinsville.
Newton County Ag'l Society.	George W. Clark.	Beaver Timber	William Darroch.	Morocco.
Noble County Ag'l Society.	Orlando Kimmell.	Ligonier	John H. Hoffman.	Ligonier.
Orange County Ag'l Society.	W. T. Spieley.	Orleans	B. J. Hon.	Orleans.
Park County Ag'l Society.	James A. Allen.	Rockville	David H. Webb.	Rockville.
Pike County Ag'l Society.	Samuel Hargrove.	Union	Goodlet Morgan.	Petersburg.
Porter County Ag'l Society.	William Riggs.	Valparaiso	Reason Bell.	Valparaiso.
Pulaski County A. and M. Ass'n.	Henry Kittinger.	Winamac	Jesse Taylor.	Winamac.
Perry County A. and M. Ass'n.	James Carey.	Rome	O. E. Connor.	Rome.
Putnam County Fair Ass'n.	R. M. Hazelett.	Greencastle	A. O. Lockridge.	Greencastle.
Randolph County A., M. and H. Ass'n.	Thomas M. Browne.	Winchester	D. E. Hoffman.	Winchester.
Rush County Ag'l Society.	E. King.	Rushville	L. Link.	Rushville.
Ripley County Ag'l Ass'n.	Rexin Johnson.	Elrod	W. R. Glasgow.	Osgood.
Shelby County J. S. and Ag'l Ass'n.	John Blessing.	Shelbyville	A. J. Gargas.	Shelbyville.
St. Joseph County Ag'l Society.	Aaron Jones.	South Bend	C. C. Towle.	Mishawaka.
Steuben County Ag'l Ass'n.	A. W. Hendry.	Rushville	Ben T. Dawson.	Angola.
Tippecanoe County Ag'l Ass'n.	W. Taylor.	Lafayette	Charles Wallace.	Lafayette.
Tipton County Fair Co.	J. T. Hunter.	Shiellville	William Harlow.	Tipton.
Vigo County Ag'l Society.	Wm. T. Beauchamp.	Terre Haute.	Egbert Curtis.	Terre Haute.
Warren County Ag'l Society.	James Goodwin.	West Lebanon	H. B. Fiesher.	West Lebanon.
Wabash County Ag'l Society.	Warren Mason.	Wabash	George W. Pauling.	Wabash.
Warrior County Ag'l Society.	Dr. T. M. Howard.	Booneville.	S. W. Taylor.	Booneville.
Washington County A., H., M. and I. As.	E. W. Shanks.	Salem	F. L. Frow.	Salem.
Wells County Ag'l Society.	John T. Glass.	Ossian	F. A. Whitley.	Buffton.
Whitley County J. S. and Ag'l Ass'n.	C. D. Waidlich.	Columbia City	Thos. R. Marshall.	Columbia City.
Bridgeport Union.	James A. Rea.	Bridgeport	Dempsey Seybold.	Perith.
Cambridge City A., H., and M. Ass'n.	A. B. Claypool.	Connersville	G. F. Schultz.	Cambridge City.
Lawrence District Fair Ass'n.	A. W. Goornies.	Lawrence	W. B. Flick.	Lawrence.
Dunkirk Union Fair Ass'n.	D. B. Moor.	Dunkirk.	T. J. Patrick.	Dunkirk.

Edinburg Union Ag'l Society	Jacob Muts	Edinburg	J. A. Thompson	Edinburg.
Pountain, Warren and Vermillion Ag. As.	David Webb	Covington	Homer Swell	Covington.
Knightsdown Union Ag'l Ass'n	William Fisher	Knightsdown	Gordon Ballard	Knightsdown.
Loogootee A. and M. Fair Ass'n	C. S. Wood	Loogootee	C. M. Sharum	Loogootee.
New Rose Ag'l Ass'n	John Lockridge	Mace	Tim Miller	New Rose.
Northeastern Ag'l Ass'n	T. N. Chamberlin	Waterloo	A. R. Stevens	Waterloo.
Plainfield Hort. and Ag'l Ass'n	Jesse White	Plainfield	W. H. Mills	Plainfield.
Southeastern Ag'l Ass'n	John McGuire	Aurora	W. H. Hill	Aurora.
Switzerland and Ohio County Ag'l Ass'n	J. W. Stewart	Rising Sun	W. H. Madison	East Enterprise.
Union A. and M. Ass'n	H. Mills	Greenville, Ohio	I. G. Stall	Union City.

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA, 1882—Continued.

NAME OF SOCIETY.	ENTRIES.															Total.
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums.	
Indiana State Board of Agr'l.	278	32	211	451	296	205	1,470	2,300	483	153	1,081	4	43	150	..	5,536
Bartholomew County Agr'l Soc.	147	6	59	30	23	60	325	32	31	1	286	58	..	..	..	645
Blackford County A. and M. Ass'n.	151	..	41	59	48	120	419	..	26	102	290	120	..	145	..	890
Boone County Agr'l Soc.	125	35	56	90	95	250	676	60	80	..	44	107	86	750	..	1,372
Clark County Agr'l Ass'n.	177	33	41	160	53	144	608	59	297	115	60	20	66	25	20	2,011
Clay County Fair Ass'n.	35	4	25	12	12	..	86	59	175	34	20	20	..	..	..	645
Clark County Central Agr'l Ass'n	119	7	32	12	..	4	174	..	57	57	54	2	..	18	..	329
Decatur County Agr'l Ass'n.	148	11	69	33	34	25	321	40	172	115	68	108	15	537	4	1,380
Deerborn County Agr'l Soc.	154	13	31	57	70	27	352	83	69	69	17	8	..	455	..	1,115
Dickinson County Agr'l Soc.	191	10	39	71	87	233	631	417	213	183	111	489	21	206	..	2,771
Delaware County A. and M. Soc.	124	..	19	27	11	12	193	90	107	47	190	21	..	145	..	783
Elkhart County Agr'l Soc.	134	..	19	27	11	12	193	90	107	47	190	21	..	145	..	783
Fayette County Fair Ass'n	138	9	29	19	30	49	274	47	66	47	281	33	2	20	..	770
Fulton County J. S. A. and M. Soc.	109	28	52	40	6	14	223	75	204	19	108	12	..	..	13	429
Gibson County H. and A. Soc.	237	25	35	34	8	45	397	93	36	223	118	41	..	534	..	1,434
Grant County Agr'l and Stock Ass'n	255	15	65	130	25	50	540	80	71	41	159	60	..	..	40	991
Greene County Agr'l Soc.	83	10	24	31	5	14	167	5	197	109	21	21	..	108	..	761
Hamilton County A. and F. Ass'n	161	7	31	22	30	38	288	22	176	109	218	238	..	199	89	1,331
Harrison County Agr'l Soc.	296	19	67	41	45	52	520	40	216	514	95	199	..	43	..	1,067
Henry County Agr'l Soc.	151	8	35	57	69	93	413	15	33	115	110	8	..	79	..	773
Howard County Agr'l Soc.	93	5	39	34	58	24	353	57	63	50	37	27	..	102	..	589
Huntington County Agr'l Soc.	220	10	128	140	110	86	694	125	210	116	273	..	..	277	..	1,965
Jackson County Agr'l Soc.	88	11	35	21	14	13	168	31	50	28	5	27	..	118	..	427
Jasper County Agr'l Soc.	38	1	32	31	14	59	175	13	34	52	80	5	6	92	27	483
Jay County Agr'l Soc.	48	..	48	16	38	23	193	114	45	66	396	21	..	..	..	612
Jennings County J. S. Agr'l Ass'n	155	18	56	61	63	28	369	320	330	84	..	..	..	940	..	2,040
Johnson County Fair Ass'n.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Knox County A. and M. Soc.	279	18	39	30	10	72	448	185	103	287	135	369	..	550	..	1,827
Lagrange County Agr'l Soc.	113	6	25	53	13	48	251	50	104	5	101	25	41	113	38	692
Laporte County Agr'l Soc.	72	..	22	22	..	2	118	50	62	8	..	..	..	177	83	523
Lake County Agr'l Soc.	195	1	51	29	50	40	336	5	69	..	68	28	..	80	..	593

EXHIBIT OF SOCIETIES.

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EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA, 1882—Continued.

NAME OF SOCIETY.	PREMIUMS PAID.															Total.
	Horses.	Jacks and Mules.	Cattle.	Sheep.	Hogs.	Poultry.	Total Live Stock.	Mechanical.	Agricultural.	Horticultural.	Textile Fabrics.	Fine Arts.	Natural History.	Miscellaneous.	Special Premiums.	
Indiana State Board of Agriculture.	\$2,840	\$141	\$1,898	\$654	\$630	\$267	\$6,420	\$46	\$353	\$730	\$476	\$2	\$117	\$60	..	\$8,096
Bartholomew County Agr'l Soc.	1,627	38	303	139	63	55	2,225	..	33	3	132	36	..	..	..	2,400
Blackford County A., H. and M. Ass'n.	448	..	99	109	74	45	1,776	..	3	57	36	..	..	12	..	986
Boone County Agr'l Soc.	680	95	120	115	90	94	1,179	84	100	73	125	60	Dip.	258	..	1,476
Cass County Agr'l Soc.	1,350	21	236	129	62	116	1,915	..	114	..	15	70	..	..	..	2,531
Clay County Fair Ass'n.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Clark County Central Agr'l Soc.	331	7	62	24	51	15	224	41	14	11	19	1	12	291	..	471
Dearborn County Agr'l Ass'n.	1,304	42	195	43	184	15	1,650	125	93	33	63	115	..	140	50	2,358
Decatur County Agr'l Soc.	1,079	62	311	100	120	15	1,751	146	21	62	17	27	10	210	..	2,182
Delaware County A. and M. Soc.	1,020	26	144	127	120	60	1,497	114	85	85	75	40	..	200	..	2,424
Elkhart County Agr'l Soc.	175	..	168	25	31	5	1,105	95	14	30	60	4	..	231	..	1,479
Fayette County Fair Ass'n.	711	31	195	51	102	64	1,154	36	59	51	144	42	..	..	..	1,549
Fulton County J. S. A. and M. Soc.	290	6	102	53	13	7	443	57	49	15	27	3	..	100	9	607
Gibson County H. and A. Soc.	796	71	132	52	30	85	1,119	95	28	9	52	42	..	..	..	1,520
Grant County Agr'l Land Stock Soc.	784	46	255	127	70	7	1,400	213	96	25	193	11	..	109	..	1,970
Greene County Agr'l Soc.	267	21	78	60	13	7	446	7	98	40	95	343	..	343	40	712
Hamilton County A. and F. Ass'n.	191	28	134	38	42	15	456	10	85	68	46	122	..	9	..	1,127
Harrison County Agr'l Soc.	367	49	141	87	92	27	763	69	103	129	46	..	..	..	..	1,142
Henry County Agr'l Soc.	370	33	210	87	105	28	833	20	Dip.	22	125	Dip.	..	325	173	1,498
Howard County Agr'l Soc.	292	24	245	86	104	27	783	134	51	66	64	34	..	94	475	1,802
Huntington County Agr'l Soc.	489	20	262	133	127	24	1,056	124	32	59	53	15	..	411	..	1,766
Jackson County Agr'l Soc.	340	30	272	77	77	10	884	43	22	17	5	1	1	92	..	1,690
Jasper County Agr'l Soc.	184	2	124	55	39	41	445	20	32	32	36	13	..	40	460	1,058
Jay County Agr'l Soc.	640	..	236	38	108	15	1,086	109	20	31	129	..	..	..	..	1,339
Jennings County J. S. Agr'l Soc.	932	49	333	105	179	38	1,647	38	235	90	..	..	..	187	60	2,606
Johnson County Fair Ass'n.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Knox County A. and M. Ass'n.	991	137	422	127	40	101	1,818	95	64	104	64	186	13	26	357	2,952
Lagrange County Agr'l Ass'n.	158	4	59	29	40	16	308	22	24	13	21	..	..	19	343	768
Laporte County Agr'l Soc.	477	..	104	25	20	2	608	93	26	16	..	24	..	300	..	1,066
Lake County Agr'l Soc.	849	4	205	68	120	27	1,273	16	22	..	52	25	..	56	..	1,449

Madison County J. S. Agr'l Soc.	1,008	54	223	249	116	41	1,691	160	39	125	177	68	29	2,261
Marion County A. and H. Ass'n	42	10	28	16	10	96	96	108	62	34	...	...	35	327
Miami County Fair Ass'n	957	46	260	168	225	1,721	1,721	135	150	98	52	114	60	2,071
Montgomery County Agr'l Soc.	4,386	28	1,375	327	395	280	6,740	210	160	...	...	...	85	7,519
Morgan County J. S. Agr'l Ass'n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Newton County Agr'l Ass'n	607	5	38	44	34	25	753	7	20	8	12	...	22	824
Noble County Agr'l Soc.	1,098	12	72	88	25	5	1,298	35	12	5	64	1	38	1,519
Orange County Agr'l Soc.	91	31	39	39	20	8	201	4	28	14	63	6	38	359
Parke County Agr'l Soc.	311	28	304	87	53	18	801	61	38	197	82	64	507	1,752
Pike County Agr'l Soc.	757	52	119	69	49	17	1,253	21	60	14	49	34	29	1,461
Porter County Agr'l Soc.	149	...	64	64	39	5	306	...	25	10	2	5	12	403
Pulaski County A. and M. Ass'n	97	11	44	56	42	4	255	...	18	13	17	2	25	311
Perry County A. and M. Ass'n	90	...	...	6	...	5	101	...	...	...	...	...	...	287
Putnam County Fair Ass'n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Randolph County A. H. and M. Ass'n	436	65	40	165	196	27	930	95	36	72	64	24	41	1,269
Rush County Agr'l Soc.	1,538	75	505	150	344	41	2,702	...	...	...	...	...	...	3,142
Ripley County Agr'l Ass'n	1,236	96	223	110	144	90	1,868	41	55	28	118	14	...	2,155
Shelby County J. S. Agr'l Ass'n	...	...	...	...	...	...	...	...	...	...	...	...	...	3,505
St. Joseph Agr'l Ass'n	2,231	...	289	125	95	94	2,814	...	77	87	145	62	101	3,349
Stanton County Agr'l Ass'n	140	2	122	93	49	12	418	73	142	68	72	18	...	1,945
Tipppecanoe County Agr'l Ass'n	...	...	...	...	...	...	...	...	...	...	...	...	...	9,517
Tipton County Fair Co.	557	11	126	113	110	10	929	49	17	13	108	...	25	1,744
Vigo County Agr'l Soc.	1,352	...	487	10	76	60	2,045	169	147	228	33	...	90	2,711
Warren County Agr'l Soc.	36	4	8	23	15	8	94	7	25	21	40	16	...	286
Wabash County Agr'l Ass'n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Warrick County Agr'l Soc.	1,051	106	207	84	46	22	1,519	...	307	27	...	...	...	2,514
Washington A. H. M. and I. Ass'n	1,538	44	270	70	37	12	1,738	25	30	43	41	56	94	1,953
Wells County Agr'l Soc.	163	5	81	35	26	18	430	130	46	67	27	27	12	1,895
Wells County J. S. Agr'l Ass'n	173	261	49	87	41	3	887	41	73	27	122	103	27	1,897
Bridgeton Union.	534	22	175	44	73	3	882	41	73	27	71	...	...	...
Cambridge City A. H. and M. Ass'n	218	12	30	22	21	...	303	41	19	4	8	6	17	458
Dunkirk Union Fair.	...	...	...	...	...	...	...	...	...	...	...	...	...	950
Edinburg Union Agr'l Soc.	899	75	312	183	173	...	1,642	292	89	...	...	...	224	2,227
Fountain War'n and Verm'n Ag. Soc.	405	75	245	90	150	50	1,005	...	165	275	50	145	73	1,713
Knightstown Union Agr'l Soc.	791	61	331	168	219	14	1,624	175	63	30	231	32	71	2,226
Lawrence District Fair Ass'n	296	...	64	30	41	10	436	...	28	21	28	...	5	518
Loogootee A. and M. Fair Ass'n	470	8	144	44	51	7	624	25	10	108	158	70	50	1,082
New Ross Agr'l Soc.	1,097	11	269	52	54	...	1,485	10	21	27	90	21	37	1,694
Northeastern Indiana Agr'l Soc.	342	...	319	108	96	11	873	65	24	68	118	88	88	1,419
Plainfield H. and A. Soc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Southeastern Indiana Agr'l Soc.	540	50	262	81	64	27	1,024	50	59	216	56	22	12	1,610
Switzerland and Ohio Counties Ag. Soc.	664	54	174	54	44	28	1,018	138	138	46	116	49	206	1,711
Union A. and M. Ass'n	443	21	30	76	111	5	587	81	16	25	92	49	108	860

EXHIBIT OF THE AGRICULTURAL SOCIETIES OF INDIANA, 1882—Continued.

NAME OF SOCIETY.	RECEIPTS.				DISBURSEMENTS.								
	Admission Fees.	License Fund Received.	Entry Fees.	Privileges Sold.	All Other Sources.	Total.	Rents and Old Claims.	Improve-ments.	Salaries.	Premiums Paid.	Expenses of Fair.	All Other Expenses.	Total.
Indiana State Board of Agr'l.	\$21,729	..	\$519	\$2,197	\$631	\$25,631	\$120	\$1,108	\$1,449	\$8,095	\$4,451	\$2,819	\$17,136
Bartholomew County Agr'l Soc.	1,545	..	679	1,312	8,256	11,793	140	8,400	..	2,401	1,223	100	11,724
Boone County Agr'l Soc.	1,590	..	35	356	..	1,986	584	125	30	1,476	215	..	1,966
Cass County Agr'l Soc.	3,583	..	307	422	404	4,718	..	79	..	2,531	743	..	4,058
Clay County Fair Ass'n	1,061	..	275	600	75	2,011	..	100	84	650	425	..	1,259
Clark County Central Agr'l Ass'n.	600	..	84	55	..	746	..	..	..	471	274	..	746
Dearborn County Agr'l Ass'n	2,157	..	295	754	201	3,406	..	1,351	..	2,358	..	..	3,909
Decatur County Agr'l Soc.	1,560	30	328	385	3,232	5,337	1,267	3,357	..	2,182	429	..	7,137
Delaware County A. and M. Soc.	2,510	60	275	315	125	3,295	..	225	80	2,424	217	145	3,191
Elkhart County Agr'l Soc.	2,245	..	435	423	48	3,152	928	1,391	..	1,479	364	112	4,176
Fayette County Fair.	2,673	..	480	419	124	3,695	..	19	75	1,549	275	111	2,305
Fulton County J. S. A. and M. Soc.	1,596	25	54	129	1,023	2,827	686	268	389	607	250	286	2,499
Gibson County H. and A. Soc.	2,796	20	54	436	778	4,085	..	1,000	125	1,520	495	206	3,347
Grant County Agr'l and Stock Soc.	2,017	50	350	461	150	3,028	400	320	..	1,970	150	108	3,024
Greene County Agr'l Soc.	1,963	..	161	221	..	1,291	71	7	..	712	155	38	1,054
Hamilton County A. and F. Ass'n.	1,963	20	110	88	109	2,292	640	140	175	1,127	175	8	2,265
Harrison County Agr'l Soc.	1,863	..	..	476	..	2,357	164	180	..	1,142	627	447	2,398
Henry County Agr'l Soc.	..	..	..	..	2,357	2,357	..	400	20	1,488	441	47	2,571
Howard County Agr'l Soc.	2,215	100	133	353	235	3,037	218	110	225	1,692	805	16	2,976
Huntington County Agr'l Soc.	2,385	15	356	390	804	3,929	50	359	..	1,766	390	112	2,669
Jackson County Agr'l Soc.	801	10	185	398	35	1,430	566	16	..	690	223	20	1,516
Jasper County Agr'l Soc.	955	..	156	258	170	1,519	..	..	75	1,058	392	..	1,526
Jay County Agr'l Soc.	1,955	35	346	296	1,206	3,722	..	280	376	1,389	92	134	2,223
Jennings County J. S. Agr'l Soc.	1,579	70	336	852	340	3,179	..	743	..	2,606	385	..	3,735
Knox County A. and M. Soc.	4,057	80	690	1,512	..	6,310	1,033	..	475	2,952	1,032	..	5,493
Lacrosse County Agr'l Soc.	1,045	100	104	20	31	1,386	..	100	75	768	..	423	1,366
Laporte County Agr'l Soc.	1,446	50	232	270	140	2,138	48	292	60	1,066	532	150	2,338
Laurens County Agr'l Soc.	1,333	..	312	77	1,600	3,353	..	1,177	..	1,449	260	..	3,353
Madison County J. S. Agr'l Soc.	3,466	30	443	639	277	4,466	25	418	490	2,261	325	266	3,776

INDIANA, 1882.

In all the requisites necessary for human prosperity, this State stands pre-eminently in the front rank, as shown by the following statements.

The foregoing reports from the agricultural societies of the State give evidence of the general improvement, marked prosperity and increased interest in agricultural affairs, and the continued advancement and recognition of the benefits resulting from the annual fairs throughout the State. The agricultural community are awake to their interests, and keeping step in the "march of progress."

The following list will show the leading fairs of the State, according to the amount of receipts:

Montgomery county	\$12,586	Shelby county	\$5,395
St. Joseph county	7,245	Decatur county	5,337
Rush county	6,318	Wabash county	5,042
Knox county	6,310	Cass county	4,718
Vigo county	5,798	Madison county	4,456

DISTRICT FAIRS.

North-eastern Indiana, Waterloo, DeKalb county	\$5,209
Edinburg Union, Johnson county	3,446
Fountain, Warren and Vermillion counties	3,284
New Ross Union, Montgomery county	3,172
Switzerland and Ohio counties	3,088

The advantages of location, soil, timber, coal and stone have been reviewed in former reports, and again, for the benefit of those not familiar with these annual publications, we here include a description of this favored locality.

The State contains an area of 22,564,870 acres, and is located in the great central basin of North America, nearly equidistant from the Mississippi river on the west, the Allegheny mountains on the east, the Gulf of Mexico on the south, and the water-shed between the great lakes and the Hudson bay on the north. The greater portion of its surface is rather level or undulating, only the southern portion, bordering on the Ohio river, perhaps one-third in extent, being decidedly hilly, and in places almost mountainous. The principal rivers that traverse the State are the Wabash and White rivers, but to these might be added a large number of less im-

portance and smaller drainage, as the Whitewater, the Maumee, the St. Joseph, the Kankakee, the Tippecanoe, the Mississinewa, the Elkhart, the Calumet, and scores of others which flow through different portions of the State, watering its magnificent soil and diversifying its varied scenery.

Indiana stands at the head of the States in railroads and telegraphs, having, in 1880, 4,963 miles of railroad in successful operation, aggregating one mile to every four hundred and twenty of her entire population, being a much larger proportion than in any other section of the civilized world. In addition to this, there are about 1,000 miles of railroad surveyed and in process of construction. The geographical position of the State is such that all through lines of railroad from the eastern cities to the west, southwest and northwest, must, almost of necessity, cross her borders, as, in fact, they do. A glance at the map will show that the great lakes on the north, and the semi-mountainous country bordering along the Ohio river on the south, will forever compel railway lines seeking a western outlet from New York, Philadelphia and Boston, to cross the State of Indiana. The consequence is, that with what through lines that cross the State, north and south lines that intersect them, and local lines that tap and connect both, Indiana has the most complete railroad system of any State in the Union. Her position relative to the southwestern States is equally fortunate, since the vast commerce that is destined to grow up between them and the middle and eastern States must inevitably seek this route.

There are improved and under cultivation 10,104,279 acres of land. The State contains 7,189,334 or 39.6 per cent. of wood land, having eight per cent. more than Ohio on the east, and twenty per cent. more than Illinois on the west. Of prairie land there are 3,760,812 acres, or one-sixth of the entire State, lying principally in the north and northwest (included in this estimate are the oak-openings of the northern counties). Of other unimproved land, water courses, etc., there are 1,510,445 acres.

The average value of farm land is \$20.44 per acre. The State supports an average of sixty souls to each section of land (of 640 acres), with an estimated population of 2,115,420 inhabitants, which, by comparison with foreign countries, is only about one-seventh (1-7) her capacity, being capable of supporting an additional number of 14,884,480.

The total number of school houses in this State is 9,647; pupils in attendance, 511,283; the value of school property is \$11,817,730, with an annual expenditure of \$2,939,872 for their maintenance.

The State ranks, comparatively, second to no other State in the Union in her system of schools and educational exhibits.

From advance sheets of the annual report by Prof. John Collett, State Geologist, on the Geology and Natural History of the State, we here make a few extracts:

Indiana has been bounteously endowed by nature. In other regions rich in ore, coal and stone, the soil is usually thin and unproductive, or *vice versa*, fertile lands are not rich in mineral treasure; but here in Indiana, a bountiful and inexhaustible supply of mineral wealth is overlaid by the richest of soils; and with cheap and abundant food, cheap homes, cheap wood and coal for fuel, and good

clays, sands, and the finest of building material, she offers to the farmers, laborers, mechanics and manufacturers a share of her abundant blessings, resources richer and more useful to humanity than gold or silver or precious stones.

BUILDING STONE.

The rocks of the State contribute largely to her wealth, for they contain some of the finest building stone in the country, and the supply, comparatively undeveloped yet, is practically inexhaustible. The excellent qualities, durability and beauty of these Indiana stones are just beginning to be recognized for building purposes throughout the country, and the quarrying interests promise to become an important feature in the products of the State, in the near future. This stone is being extensively used in some of the most expensive and imposing buildings throughout the country, and the demand is increasing as it becomes better known. During the year 1880, the capital invested in the operation of quarries was \$613,500, and the output of material was 8,413,827 cubic feet, worth \$633,775, or about \$20,000 more than the total capital employed. To effect this result required the labor of 1,788 men and 545 horses, and the use of 13 steam channellers in quarrying; 107 derricks and cranes in hoisting; 14 saw mills and 42 gangs of saws (3 per mill), in dressing; while 5,727,225 cubic yards of space were excavated, in doing which \$2,300 worth of powder and dynamite was used.

COAL.

The Indiana coal fields are embraced in an area of about 7,000 square miles, and are entered from all directions by railroads, thus insuring a steady and inexhaustible supply of the best fuel at a low price. There are in all twelve seams at varying depths, from the surface to three hundred feet below, averaging a depth of eighty feet. Five of these seams are almost constantly workable wherever met, varying from one-half to eleven feet, and averaging five feet in thickness. The small seams are worked for local use by "stripping."

These coals range in quality from "fair" to "superior." The "block" coal, pre-eminent as a metallurgic agent, is found in an area of about 600 square miles. Remarkably free from sulphur and phosphorus, it is rich in carbon, and admirably adapted to the manufacture of "Bessemer" steel, and for refining, as well as for rolling mill and locomotive use. It burns free, without caking, to a minimum of white ash, and with a ruddy flame.

The enormous amount of power stored up in coal is thus set forth by Professor Rogers: "The dynamic value of one pound of good steam coal is equivalent to the work of one man for one day, and three tons are equal to twenty years' hard work of 300 days to the year. The usual estimate of a four-foot seam is that it will yield one ton of good coal for every square yard, or about 5,000 tons per acre. Each square mile will then contain 3,200,000 tons, which, in the total capacity for the production of power, are equal to the labor of over 1,000,000 able-bodied men for twenty years."

Of course this contemplates that period in the future when inventive genius shall develop processes by which the full power of coal shall be economized, now so wasted in smoke and imperfect combustion.

During the past year the coal mines of Indiana employed 5,000 men, to whom were paid wages amounting to over \$1,500,000. In the mines was invested a capital of \$2,500,000, while the product was 1,500,000 tons of coal, worth at the mines \$2,500,000, a sum equal to the capital invested.

From a small beginning in a region where wood fuel was so abundant as to be a drawback, the excellent quality of our coal has promoted Indiana to the place of sixth in the coal-producing States of the Union, with a gain of 231 per cent. in the past decade, or over 23 per cent. per annum, while the future promises still larger outputs and triumphs.

GLASS SAND.

Extensive beds of sand and friable sandstone occur in the counties of Madison Parke, Clark and Harrison. It is of ocean washed purity, frequently white as snow, and so pure as to cause the plate-glass of our State to rival, and in some respects to excel, the best European products. With fair encouragement Indiana can supply the nation with glass cheaper and better than foreign manufacturers, and can at the same time give employment to thousands of skilled and unskilled laborers, and bring additional capital within her borders.

GRAVEL.

This is so bountifully present over nearly all the State that it is as common as air and as unprized. Other countries make costly highways with broken stone; here nature presents the best of granite, imported during the great "ice age," ready prepared for use. This is the best possible material, and in the future, with ordinary enterprise, our State will have the best roads in the world, with the consequent blessings of comfort, enjoyment and profit. During the year the sale of gravel in the State amounted to about 200,000 cubic yards, but probably ten times that amount was used without cost.

LIME AND CEMENT.

These necessities of life are so abundant in the State as to escape attention. The whole northern, central drift regions and eastern and middle parts are underlaid with good limestone, suitable for calcining. The very best quality of lime is produced from these rocks, and in quantities not only sufficient for home consumption, but for an extensive trade in exportation also. To-day it is only used for mechanical purposes, but its full value will be appreciated when, in the near future, it becomes more generally used in agriculture for fertilizing purposes. The lime of the Upper Wabash, Central and Southern Indiana is unrivaled, and the Delphi and Huntington and Utica limes are of very superior quality.

Cement that meets all the requirements of the market is prepared from the native beds of Clark county, and is of fine quality; while large beds, still undeveloped, exist in Harrison county, waiting to reward him who will turn his attention to and bestow his labor upon them. From the lacustral clays and chalks of St. Joseph county is made, at South Bend, a fine "Portland cement," which is not rivaled even by the best European brands. During the year 1882 there was produced in the State 836,628 bushels of lime and 82,938 bushels of cement.

CLAYS AND KAOLIN.

Brick clay is as common as water throughout the State. Owing to the presence of iron, the clays of Delphi, Carroll county, offer a product of extra beauty, smooth and ruddy, and with colors so fixed that buildings which have stood for twenty or twenty-five years present the same cheerful, bright appearance as those erected last year. Our builders would do well to consider the color and quality of this material, permanently painted by nature.

The kaolin mines of Owen and Lawrence counties have lately opened a new and prosperous field of labor. The product of these mines is used by the "Encaustic Tile Works," at Indianapolis, where are being produced tiles of rare beauty and excellence, rich in design, perfect in form, equally vitrified, and unrivaled by the best factories of England and France, over whose products they take precedence in the great public buildings in eastern cities. Large beds of kaolin, still undeveloped, invite exploration and examination in Harrison county. The discovery of these kaolin beds has already resulted in the importation of large amounts of capital, and numbers of foreign skilled workmen.

Underlying all our coal seams are great beds of excellent fire clay. Good fire brick are made in Clay and Vermillion counties, and the raw material is abundant in the southwestern regions. When the coming man builds, not for to-day, but for all time, he will require permanent fire-proof edifices, and will then avoid disastrous conflagrations by cheaply furnishing from this clay, window and door frames, roofs, cornices, etc., and ornamental brackets of terra cotta ware. The supply is sufficient to furnish the world, and when common sense prevails, the clays of Indiana will be richer than the mines of Colorado and the golden sand of California. During 1882, 2,769 tons of fire clay were produced.

GAS.

In Harrison and other counties, considerable areas present from the deep bores a flow of gas distilled by the internal heat of the earth from the bituminous beds of the Devonian age. This flow has been utilized for concentrating brine, and is of great economic value for driving engines, burning lime, crockery, etc., as well as for illuminating and culinary purposes. It invites and deserves attention.

SOIL.

The soil of Indiana is composed of materials from all the geological horizons. It contains the elements of all, spread as a broad alluvial plain along the ancient glacial bed. Being deep, it holds like a sponge the excess of winter and spring moisture to alleviate with dews, or water by springs, the surrounding country, avoiding excessive drought. Posey county has shown to the State Board of Agriculture 180 bushels of corn to the acre, while Vermillion county comes to the front with 64.78 bushels of wheat and 110 bushels of oats to the acre. Other regions are equally rich, showing results in grains and grasses which rival these. Such crops are not accidents, but are the legitimate and natural results of a superior soil and its mineral constituents. When we consider that a soil composed of the decompo-

sition of local rocks only is lean and soon needs manure, we can appreciate the effects of the deposition of the glacial drift over Indiana in the almost fabulous fertility of its soil as instanced by the above examples.

From advance sheets of the Bureau of Statistics we compile the comparative statistics of the agricultural products.

CORN.

The area grown in corn this year was 3,312,683 acres, and production, 115,699,797 bushels. The increased yield of this crop, though not so marked as that of wheat, has been steady. In 1850 the bushels grown per capita were 52.58; in 1860 there was 53.01; in 1870, which was exceptionally unfavorable for the corn plant, there was 30.41; but in 1880 the bushels grown per capita were 58.39. The wheat production of this year closely approximates one-tenth that of the United States, and the same is true of corn.

Comparative Yields.

1882	115,699,797 bushels . . .	3,312,683 acres . . .	34.9 bushels per acre
1881	89,599,444 bushels . . .	3,626,909 acres . . .	24.7 bushels per acre
1880	80,990,696 bushels . . .	3,130,327 acres . . .	25.8 bushels per acre

The principal corn producing counties of the State, for the year 1882, are as follows:

Tippecanoe county produced . . .	3,117,565 bush . .	average, 34.4 bush. per acre
Benton county produced	2,737,402 bush . .	average, 30.1 bush. per acre
Rush county produced.	2,223,214 bush . .	average, 38.5 bush. per acre
Posey county produced	2,126,753 bush . .	average, 41.5 bush. per acre
Boone county produced	2,095,090 bush . .	average, 38.7 bush. per acre
Wayne county produced	2,083,424 bush . .	average, 36.9 bush. per acre
Putnam county produced	2,054,012 bush . .	average, 38.3 bush. per acre
Madison county produced	1,984,508 bush . .	average, 37.3 bush. per acre
Henry county produced	1,969,372 bush . .	average, 37.5 bush. per acre
Knox county produced.	1,939,260 bush . .	average, 39.8 bush. per acre

WHEAT.

The wheat yield is perhaps equal to any ever before grown in the State. The cultivation and growth of wheat has developed more rapidly, perhaps, than that of any other staple crop, and has more than kept pace with the population. It is interesting to note this fact: In 1850 the product per capita was 6.30 bushels; in 1860 it was 12.50 bushels; in 1870 it was 16.51 bushels, and in 1880 had increased to 23.75 bushels per capita. Experience has shown that our soil is well adapted to the growth of this cereal, and that the yield per acre will yet be greatly increased.

Comparative Yields.

1882	46,928,643 bushels . . .	3,063,348 acres . . .	15.3 bushels per acre
1881	30,625,668 bushels . . .	3,210,547 acres . . .	9.5 bushels per acre
1880	47,130,684 bushels . . .	3,109,845 acres . . .	15.2 bushels per acre

The principal wheat producing counties in Indiana are as follows, for 1882:

Gibson county	1,368,313 bushels	13.6 bushels per acre
Daviess county	1,364,130 bushels	18.5 bushels per acre
Posey county	1,104,477 bushels	18.8 bushels per acre
Shelby county	1,068,464 bushels	16.1 bushels per acre
Rush county	997,772 bushels	18.1 bushels per acre
Clinton county	980,816 bushels	17.6 bushels per acre
Tippecanoe county	977,952 bushels	16.4 bushels per acre
Knox county	976,761 bushels	15.9 bushels per acre
Montgomery county	900,515 bushels	19.4 bushels per acre
Marion county	854,980 bushels	19.8 bushels per acre

OATS.

The area of oats was 684,822 acres, from which were produced 19,615,516 bushels, which is the largest yield, both in the aggregate and per acre, ever grown in the State. The crop of 1880 was the greatest that had previously been grown. The acreage that year was 686,901, and production 15,405,822. The area of 1880 was a little greater, and the bushels produced less than this year.

Comparative Yields.

1882	19,615,516 bushels	684,822 acres	28.6 bushels per acre
1881	14,398,617 bushels	580,279 acres	24.8 bushels per acre
1880	15,405,822 bushels	686,901 acres	22.4 bushels per acre

The leading counties in this cereal are:

Lake county.	741,059 bushels	35.3 bushels per acre
Harrison county.	594,856 bushels	27.8 bushels per acre
Allen county	521,316 bushels	32. bushels per acre
Newton county	462,692 bushels	32.3 bushels per acre
White county	442,203 bushels	28.1 bushels per acre
Benton county.	497,850 bushels	36. bushels per acre
Elkhart county	418,844 bushels	34.9 bushels per acre
Porter county	406,082 bushels	29. bushels per acre
Tippecanoe county.	368,087 bushels	33. bushels per acre
Washington county	367,184 bushels	24.3 bushels per acre

BARLEY.

The product as reported is 1,138,717 bushels from 44,242 acres—25.7 bushels per acre. The leading counties in this cereal are:

Dearborn county.	158,024 bushels	29.1 bushels per acre
Franklin county.	78,190 bushels	25.7 bushels per acre
Shelby county	57,135 bushels	28.3 bushels per acre
Spencer county.	48,721 bushels	24.8 bushels per acre

Rush county.	28,622 bushels	26. bushels per acre
Jefferson county	26,285 bushels	20.4 bushels per acre
Morgan county	24,810 bushels	31.1 bushels per acre
Ripley county.	22,578 bushels	28. bushels per acre
Knox county	21,800 bushels	33.1 bushels per acre
Wayne county.	21,004 bushels	29.3 bushels per acre

RYE.

Comparative Yield.

1882	548,405 bushels	36,695 acres	14.9 bushels per acre
1881	208,912 bushels	15,839 acres	13.2 bushels per acre
1880	217,192 bushels	15,028 acres	14.4 bushels per acre

Jasper county	38,253 bushels from 2,869 acres	13.3 bushels per acre
Switzerland county.	28,809 bushels from 1,996 acres	14.4 bushels per acre
Newton county.	21,808 bushels from 1,354 acres	16.1 bushels per acre
Pulaski county.	19,275 bushels from 1,365 acres	14.1 bushels per acre
Benton county	15,809 bushels from 1,163 acres	13.5 bushels per acre

POTATOES.

The Irish Potato crop of this year is also the largest yet reported.

Comparative Yield.

1882	7,264,830 bushels	72,934 acres
1881	2,386,251 bushels	72,314 acres
1880	4,148,034 bushels	77,936 acres

Harrison county	345,170 bushels from 2,604 acres	132.5 bushels per acre
Allen county.	330,283 bushels from 2,584 acres	127.8 bushels per acre
Lagrange county	184,760 bushels from 1,199 acres	154.0 bushels per acre
Switzerland county	181,000 bushels from 1,880 acres	98.9 bushels per acre
Elkhart county	173,825 bushels from 1,743 acres	99.7 bushels per acre
Wabash county	173,400 bushels from 951 acres	182.3 bushels per acre
St. Joseph county	168,875 bushels from 1,516 acres	111.3 bushels per acre
Vanderburgh county	164,350 bushels from 1,466 acres	112.1 bushels per acre
Knox county	162,390 bushels from 1,052 acres	154.3 bushels per acre
Laporte county	158,125 bushels from 1,695 acres	93.2 bushels per acre

SWEET POTATOES.

The product as reported is 696,245 bushels from 10,506 acres—66.2 bushels per acre. The leading counties in this product are:

Porter county	69,110 bushels	89.6 bushels per acre
Marion county	68,754 bushels	91.5 bushels per acre
Montgomery county	57,520 bushels	97.8 bushels per acre
Tippecanoe county	42,930 bushels	82.2 bushels per acre
Floyd county	40,500 bushels	88. bushels per acre
Knox county	29,840 bushels	67.3 bushels per acre
Clark county	27,910 bushels	67.9 bushels per acre
Wabash county	22,090 bushels	52.2 bushels per acre
Dearborn county	21,200 bushels	69.5 bushels per acre
Hamilton county	20,560 bushels	52. bushels per acre

FLAX SEED.

The product as reported is 562,270 bushels. The leading counties in this product are:

Benton county	61,113 bushels
Hendricks county	53,578 bushels
Fountain county	52,332 bushels
Huntington county	37,700 bushels
Newton county	36,976 bushels
Jasper county	36,486 bushels
Wabash county	30,832 bushels
Bartholemew county	20,545 bushels
Wells county	17,010 bushels
Randolph county	16,842 bushels

HAY.

The hay crop is also the largest heretofore grown in the State.

Comparative Yield.

1882	1,599,994 tons from 984,982 acres	1.6 tons per acre
1881	1,363,217 tons from 988,560 acres	1.3 tons per acre
1880	1,221,168 tons from 795,438 acres	1.5 tons per acre
Ripley county	37,608 tons from 23,080 acres	1.6 tons per acre
Decatur county	36,739 tons from 19,802 acres	1.8 tons per acre
Marion county	34,766 tons from 19,658 acres	1.7 tons per acre
Greene county	31,422 tons from 17,497 acres	1.7 tons per acre
Allen county	30,582 tons from 18,867 acres	1.6 tons per acre
Washington county	30,189 tons from 20,037 acres	1.5 tons per acre

TOBACCO.

Comparative Yield.

1882	13,593,486 pounds from 17,234 acres	788.7 pounds per acre
1881	6,565,677 pounds from 13,624 acres	481.9 pounds per acre
1880	8,389,954 pounds from 13,689 acres	612.9 pounds per acre

Spencer county . . .	3,651,200 pounds from 4,408 acres . . .	828.3 pounds per acre
Warrick county. . .	2,963,750 pounds from 4,214 acres . . .	703.3 pounds per acre
Switzerland county .	1,864,095 pounds from 2,190 acres . . .	851.1 pounds per acre
Pike county	1,230,100 pounds from 1,784 acres . . .	689.5 pounds per acre
Dubois county . . .	999,580 pounds from 1,443 acres . . .	692.7 pounds per acre

MEADOWS AND HAY.

Statement showing the acres of meadow, and tons of hay for the year 1882, also the number of tons per acre. The total number of tons raised in 1882 was 1,599,949, a decrease of 296,732 tons. The average tons per acre in 1882 were 1.6 tons per acre; in 1881, 1.3 tons per acre.

	<i>Acres.</i>	<i>Tons.</i>	<i>Tons per Acre</i>
Ripley county	23,080	37,608	1.65
Decatur county	19,802	36,739	1.85
Marion county	19,658	34,766	1.76
Lake county	22,248	33,735	1.51
Greene county	17,497	31,422	1.79
Allen county	18,867	30,582	1.62
Washington county	20,037	30,189	1.50
Jennings county	19,262	28,289	1.45
Knox county	15,198	26,635	1.75
Jackson county	16,148	26,284	1.62
Owen county	19,183	26,034	1.35

The acreage of clover hay was 836,034 acres, an increase of 525,545 acres over the previous year.

In 1881 there were raised 242,793 bushels of clover seed and 41,743 bushels of timothy seed. The acreage of blue grass and wild grasses, in 1882, was 1,781,571 acres; an increase of 203,749 acres over the previous year.

TIMBER LAND.

The acreage of timber land is reported at 4,585,012, a decrease of 236,291 acres from last year. The natural forests of the State are rapidly disappearing, but in the prairie sections there is a growing tendency to tree planting, which should be

encouraged. The best timber in the State is found in the northeastern and southwestern sections. The largest acreage of timber land is found in the following counties:

Dubois county	91,613	Perry county	74,810
Washington county	84,707	Jay county	73,152
Jackson county	83,531	Parke county	72,719
Allen county	81,064	Miami county	71,540
Randolph county	74,985	Jasper county	71,459

There are 1,781,571 acres of grazing lands, an increase of 203,749 acres over that reported last year.

The dairy industry shows a marked increase also. There are 121,080,678 gallons of milk reported, 26,937,124 pounds of butter, and 833,110 pounds of cheese.

The leading counties in the production of milk, butter and cheese are given below:

COUNTIES.	Gallons of Milk.	COUNTIES.	Pounds of Butter.	COUNTIES.	Pounds of Cheese.
Miami	2,915,783	Allen	648,575	Porter	182,765
Randolph	2,813,698	Elkhart	544,833	Lake	171,478
Allen	2,761,587	Steuben	510,414	Steuben	142,895
Marion	2,688,017	Huntington	507,578	Clarke	82,032
Noble	2,618,154	Marion	494,359	Adams	37,318
Daviess	2,354,812	Wayne	485,866	Fayette	35,025
Wayne	2,251,874	Laporte	485,177	Jefferson	26,056
St. Joseph	2,132,591	Noble	461,808	DeKalb	21,510
Elkhart	2,092,452	Shelby	451,259	Wells	17,465
Huntington	2,042,153	St. Joseph	448,528	Miami	15,088

DRAINAGE.

The tile drainage of farm lands is rapidly increasing in all sections of the State underlaid with clay subsoils. Reports on tile drainage were received from all but two counties, which show that there are 9,824,297 rods of tile drainage, or 30,701 miles.

The counties having the greatest number of rods of tile are as follows:

Decatur county	693,381 rods of tile.
Marion county	477,052 rods of tile.
Rush county	466,335 rods of tile.

Shelby county	442,306 rods of tile.
Hamilton county	389,345 rods of tile.
Wabash county	379,591 rods of tile.
Hancock county	362,518 rods of tile.
Howard county	341,253 rods of tile.
Randolph county	317,315 rods of tile.
Clinton county	316,215 rods of tile.

From the compendium of the Tenth Census of the United States there are 735 brick and tile establishments reported, which produce tile valued at \$643,570, and drain pipe to the amount of \$74,622.

FRUIT TREES.

The following statement shows the number of bearing and non-bearing fruit trees existing April 1, 1882:

	<i>Bearing.</i>	<i>Non-Bearing.</i>
Apple trees	5,927,418	2,650,882
Peach trees	1,740,577	848,615
Pear trees	233,078	190,206
Plum trees	112,228	130,153
Quince trees	30,401	45,956
Cherry trees	695,218	374,954
Siberian Crab trees	64,659	70,080
Grape vines	1,337,931	499,495

The leading counties are as follows:

APPLE TREES.

	<i>Bearing.</i>	<i>Non-Bearing.</i>
Harrison county	185,484	83,215
St. Joseph county	146,740	34,571
Elkhart county	146,365	24,148
Steuben county.	125,069	27,674
Hamilton county	124,390	137,581
Kosciusko county	122,283	25,115
Ripley county	118,692	41,055
Crawford county	115,541	54,420
Noble county	108,007	18,650
Washington county.	105,752	37,830

PEACH TREES.

	<i>Bearing.</i>	<i>Non-Bearing.</i>
Washington county	154,434	25,773
Clark county	104,028	25,484
Harrison county	75,737	28,217
Brown county	59,924	11,403
Orange county	54,485	11,692
Jackson county	53,725	10,968
Greene county	46,620	22,412
Crawford county	44,961	11,951
Lawrence county	44,759	10,509
Elkhart county	43,544	11,399

PEAR TREES.

	<i>Bearing.</i>	<i>Non-Bearing.</i>
Harrison county	8,504	3,792
Marion county	7,851	5,787
Wayne county	6,578	4,695
Jefferson county	5,574	1,715
Dearborn county	5,325	3,060
Elkhart county	5,124	2,606
Randolph county	4,887	3,550
Noble county	4,885	2,852
St. Joseph county	4,844	5,168
Tippecanoe county	4,655	2,476

PLUM TREES.

	<i>Bearing.</i>	<i>Non-Bearing.</i>
Dearborn county	8,763	9,954
Jefferson county	5,785	7,502
Switzerland county	5,047	5,404
Franklin county	5,033	3,499
Harrison county	4,489	4,508
Gibson county	4,410	4,305
Clark county	3,081	2,036
Washington county	2,749	1,439
Warrick county	2,678	1,896
Spencer county	2,299	2,772

The excessively cold winter of 1880-81 destroyed 25 to 30 per cent. of the apple and peach trees. The number of bearing apple trees reported is 5,927,418, and peach trees, 1,740,577. In the two years ending with April, 1882, there were 1,127,592 apples and 525,355 peach trees planted. The counties producing the largest number of bushels of apples and peaches are as follows:

	<i>Bus. of Apples.</i>		<i>Bus. of Peaches.</i>
Harrison county	830,753	Washington county	161,737
Sullivan county	762,151	Harrison county	146,573
Spencer county	591,689	Jackson county	98,191
Allen county	563,919	Crawford county	85,422
Crawford county	559,728	Clark county	83,049
Vanderburgh county	532,441	Jefferson county	70,561
Posey county	488,000	Elkhart county	57,447
Greene county	440,809	Greene county	56,875
Vermillion county	424,822	Brown county	56,361
Washington county	416,886	Spencer county	55,085

DEATH AND REPLANT OF FRUIT TREES.

During the two years ending April 1, 1882, the number of fruit trees killed by the weather, blight and insects, and the number replanted during that time, was as follows:

	<i>Died.</i>	<i>Planted.</i>
Apple	1,951,380	1,127,592
Peach	732,389	525,355
Pear	78,640	108,082

Showing a loss of 1,001,330 fruit trees. The ten counties sustaining the greatest loss are given below:

	<i>Loss.</i>	<i>Replant.</i>	<i>Decrease.</i>
Hamilton county	199,401	60,839	138,562
Randolph county	128,816	58,012	70,804
Jay county	81,581	25,793	55,788
Marion county	80,773	29,096	51,677
Wayne county	66,025	40,082	15,943
Adams county	55,213	21,702	33,511
Delaware county	60,854	28,134	32,720
Wells county	52,732	25,467	27,265
Madison county	51,286	27,970	24,316

Statement showing the bushels, gallons and pounds of pears, plums, cranberries, quinces, grapes, cherries, strawberries, currants and other berries, for the year 1881, and the county producing the largest quantity of each:

Pears	29,484 bushels . .	Orange county . . .	1,456 bushels
Plums	4,214 bushels . .	Spencer county . . .	371 bushels
Cranberries	1,665 bushels . .	Whitley county. . .	248 bushels
Quinces	13,632 bushels . .	Marion county . . .	9,105 bushels
Grapes	2,199,099 pounds . .	Elkhart county . . .	278,848 pounds

Strawberries.	2,261,938 gallons . .	Floyd county	46,839 gallons
Currants and other berries	186,786 gallons . .	Floyd county	15,524 gallons
Cherries	193,569 gallons . .	Allen county	22,083 gallons

Statement showing the bushels and gallons of dried apples, pears, peaches, plums and cherries for the year 1881, and the county producing the largest quantity of each:

Dried apples	64,837 bushels . .	Steuben county	8,574 bushels
Dried pears	3,469 bushels . .	Vigo county	1,360 bushels
Dried peaches	15,871 bushels . .	Orange county	2,076 bushels
Dried plums.	869 bushels . .	Daviess county	511 bushels
Dried cherries.	14,229 gallons . .	Daviess county	1,478 gallons

There were 171,572 cans of peaches and 595,252 cans of small fruit put up for the year 1881. Harrison county reports the largest number of cans of peaches, 43,860 cans, and Johnson county reports the largest number of cans of small fruit, 58,977 cans.

WINE, CIDER AND VINEGAR.

The amount of wine, cider and vinegar made, is as follows: Cider for the year ending April 1, 1881, 2,610,583 gallons, a decrease of 1,642,463 gallons over the preceding year. Wine for the year ending April 1, 1882, 44,827 gallons, a decrease of 45,951 gallons over the preceding year. Vinegar for the year ending April 1, 1882, 369,863 gallons, a decrease of 275,814 gallons over the preceding year.

The counties producing the largest number of gallons of the above are given in their order as follows:

COUNTIES.	Gallons of Wine.	COUNTIES.	Gallons of Cider.	COUNTIES.	Gallons of Vinegar
Daviess.	4,296	Allen	230,931	Allen	13,996
Warwick	2,653	DeKalb	167,365	Fulton	12,903
Dearborn	2,557	Elkhart	166,865	Wells	12,001
Marion	2,520	Noble	148,589	Jefferson	11,520
Ripley.	2,450	Huntington.	139,341	Noble	11,462
Crawford	2,415	Whitely.	138,677	Wabash	11,066
Carroll	1,800	St. Joseph	118,760	Marion	9,933
Knox	1,536	Kosciusko.	99,200	Laporte	9,845
Allen	1,079	Marshall	94,688	Kosciusko	8,548
Vanderburg.	1,028	Wabash	76,395	Marshall.	8,506

MAPLE MOLASSES.

The total number of gallons made in 1881 shows a marked increase over that of preceding years, which can be accounted for in the great increase as reported from Ripley county. The yield in this county for 1881, is reported as 206,051 gallons, while for 1880 and 1879 it was only 705 and 1,134 gallons respectively.

The total production is reported at 475,628 gallons, from which it will be seen that Ripley county is credited, by the Bureau of Statistics, with over forty-three per cent. of the entire yield of the State. On page 3 of Bureau of Statistics for 1882 attention is called to this fact, as follows: "The statement cited is not an impossibility. The township contains fifty-five square miles—and probably one-fifth is timber land—making 7,040 acres. If the timber land should average seven sugar trees per acre (we have often seen twenty), and yield five gallons per tree, it would make more than the report shows. How does this Bureau know but some enterprising person made that a special business, and worked it to the utmost during the last year."

Comparative Yields.

1881.	475,628 gallons
1880.	203,134 gallons
1879.	224,651 gallons

The principal counties in this production are:

Ripley county	206,051 gallons	Montgomery county	10,921 gallons
Rush county	14,133 gallons	Elkhart county	8,970 gallons
Pulaski county	13,729 gallons	Wayne county	8,802 gallons
Henry county	13,376 gallons	Owen county	8,710 gallons
Parke county	11,112 gallons	Boone county	8,842 gallons

SORGHUM MOLASSES.

The total number of gallons made in 1881 was 791,377. The largest yield in ten counties is given below:

Comparative Yields.

1881	791,377 gallons
1880	939,020 gallons
1879	1,588,222 gallons
Spencer county	35,069 gallons . . . decrease from 1879, 30,166
Warrick county	27,534 gallons . . . decrease from 1879, 11,225
Boone county	15,146 gallons . . . decrease from 1879, 27,282
Jackson county	11,482 gallons . . . decrease from 1879, 23,868

Adams county	13,047 gallons	decrease from 1879, 23,155
Gibson county	8,549 gallons	decrease from 1879, 22,056
Greene county	17,866 gallons	decrease from 1879, 21,765
Ripley county	21,756 gallons	decrease from 1879, 22,550
Pike county	21,294 gallons	decrease from 1879, 18,732
Hendricks county	9,471 gallons	decrease from 1879, 20,435

BEES AND HONEY.

The statement below is a showing of the number of stands of bees on the 1st day of April, 1882, the pounds of honey made, and the number of stands killed during the year ending April 1, 1882.

Stands of bees	63,965
Pounds of honey.	420,201
Stands killed during the year	38,357
Average pounds of honey to stand	6.61

The following counties show the largest number of stands of bees:

	<i>Stands of Bees.</i>	<i>Pounds of Honey.</i>	<i>Av. Pounds per Stand.</i>	<i>Stands killed dur- ing Year.</i>
Tiptecanoe county	1,939	10,829	5.5	1,268
Posey county	1,900	7,388	3.8	488
Elkhart county	1,587	8,578	5.4	496
Wabash county	1,254	8,246	6.5	691
Vigo county	1,247	5,808	4.6	767
Fulton county	1,162	7,635	6.5	525
Miami county	1,147	7,505	6.5	557
Knox county	1,116	3,701	3.3	570
Spencer county	1,038	6,155	5.9	448
Warren county	1,034	7,382	7.1	1,001

The following counties show the largest amount of honey raised and number of pounds per stand of bees, etc.:

	<i>Stands of Bees.</i>	<i>Pounds of Honey.</i>	<i>Av. Pounds per Stand.</i>	<i>Stands killed dur- ing Year.</i>
Switzerland county	731	12,675	17.3	219
Steuben county	862	12,398	14.3	235
Porter county	543	11,581	19.4	133
Tiptecanoe county	1,939	10,829	5.5	1,268
Lagrange county	924	10,096	10.9	256
Marion county	993	9,556	9.6	551
Elkhart county	1,587	8,578	5.4	496
Wabash county	1,254	8,246	6.5	691
Whitley county	935	8,115	8.6	2,723
Adams county	1,017	8,082	7.9	511

The following counties show the largest amount of honey raised per stand of bees, etc.:

	<i>Stands of Bees.</i>	<i>Pounds of Honey.</i>	<i>Av. Pounds per Stand.</i>	<i>Stands killed dur- ing Year.</i>
Porter county	548	11,581	19.4	133
Switzerland county	731	12,675	17.3	219
Fayette county	410	6,631	16.1	193
Hendricks county	499	7,875	15.7	221
Steuben county	862	12,398	14.3	235
Shelby county	329	3,693	11.2	244
Lawrence county	220	2,452	11.1	180
Hancock county	51	5,680	10.9	376
Lagrange county	924	10,096	10.9	256
Allen county	804	8,204	10.2	202

TABLE showing the product of each principal crop for the years designated, with the
Agriculture at

PRODUCTS.	1881.	1880.	1879.
Corn produced, bushels.	79,618,000	99,228,300	134,920,500
Corn, average yield per acre, bushels	21.8	29.	33.
Corn, number of acres	3,657,800	3,421,700	4,088,500
Corn, value per bushel—cents	0.60	0.40	0.34
Corn, total valuation	\$47,770,800	\$39,691,720	\$45,872,970
Wheat produced, bushels	31,353,000	49,766,758	43,709,980
Wheat, average yield per acre, bushels	10.8	16.8	20.3
Wheat, number of acres	2,903,100	2,962,307	2,153,200
Wheat, value per bushel	\$1.27	\$0.99	\$1.17
Wheat, total valuation	\$39,818,310	\$49,269,090	\$51,140,653
Rye produced, bushels	249,000	304,038	504,000
Rye, average yield per acre, bushels	10.2	13.3	17.5
Rye, number of acres	24,400	22,860	28,800
Rye, value per bushel	\$0.93	\$0.70	\$0.71
Rye, total valuation	\$231,570	\$212,827	\$357,840
Oats produced, bushels	15,711,000	15,710,978	14,028,310
Oats, average yield per acre, bushels	23.	24.7	28.3
Oats, number of acres	683,000	636,072	495,700
Oats, value per bushel	\$0.42	\$0.33	\$0.28
Oats, total valuation	\$6,598,620	\$5,184,623	\$3,927,327
Barley produced, bushels*	385,000	410,000	550,800
Barley, average yield per acre, bushels	25.	25.	27.
Barley, number of acres	14,300	16,400	20,400
Barley, value per bushel	\$1.05	\$0.81	\$0.78
Barley, total valuation	\$404,250	\$332,100	\$429,624
Buckwheat produced, bushels*	79,000	106,110	160,000
Buckwheat, average yield per acre, bushels	11.	13.5	20.
Buckwheat, number of acres	7,200	7,860	8,000
Buckwheat, value per bushel	\$0.99	\$0.78	\$0.70
Buckwheat, total valuation	\$78,210	\$82,766	\$112,000
Potatoes produced, bushels	2,961,910	3,489,200	4,080,000
Potatoes, average yield per acre, bushels	35.	59.	68.
Potatoes, number of acres	81,628	58,800	60,000
Potatoes, value per bushel	\$1.06	\$0.59	\$0.41
Potatoes, total valuation	\$3,139,625	\$2,046,828	\$1,672,800
Tobacco produced, pounds*	7,719,373	7,609,030	6,644,400
Tobacco, average yield per acre, pounds	717.	715.	840.
Tobacco, number of acres	10,760	10,842	7,910
Tobacco, value per pound	\$0.07	\$0.05	\$0.05
Tobacco, total valuation	\$578,952	\$380,451	\$332,220
Hay produced, tons	1,374,694	1,481,780	1,411,200
Hay, average yield per acre, tons	1.20	1.48	1.21
Hay, number of acres	1,145,578	1,001,169	1,168,281
Hay, value per ton	\$12.20	\$10.30	\$9.34
Hay, total valuation	\$16,771,267	\$15,262,128	\$13,886,206
Acres cultivated, total	8,531,264	8,137,830	8,027,791
Valuation, total.	\$115,397,604	\$112,462,533	\$117,732,242

* Average of nine years.

average yield per acre and valuation, taken from the reports of the Department of Washington.

1878.	1877.	1876.	1875.	1874.	1873.	1872.	Averages of 10 years
138,252,000	96,000,000	99,000,000	95,000,000	74,624,000	67,840,000	85,541,000	97,002,480
32.8	30.	30.	34.	27.	25.6	38.7	30.1
4,215,000	3,200,000	3,300,000	2,794,117	2,763,832	2,650,000	2,210,361	3,230,133
0.27	0.34	0.34	0.39	0.51	0.40	0.29	0.35
\$37,328,040	\$32,640,000	\$33,660,000	\$37,050,000	\$38,058,240	\$27,136,000	\$24,806,890	\$37,019,591
33,136,000	24,600,000	20,000,000	17,280,000	23,331,000	20,832,000	19,381,000	28,338,971
16.	14.5	11.	9.	12.2	11.2	12.4	13.4
2,071,000	1,686,552	1,818,181	1,920,000	1,912,377	1,860,000	1,562,983	2,085,970
\$0.81	\$1.13	\$1.02	\$0.97	\$0.94	\$1.22	\$1.32	\$1.08
\$26,840,160	\$27,798,000	\$20,400,000	\$16,761,600	\$21,931,140	\$25,515,040	\$25,582,929	\$30,506,191
435,000	540,000	520,000	330,000	397,000	497,000	410,000	418,603
14.5	15.	12.2	12.	14.5	14.2	14.5	13.8
30,000	36,000	42,622	27,500	27,379	27,958	28,275	28,579
\$0.51	\$0.56	\$0.71	\$0.75	\$0.77	\$0.71	\$0.65	\$0.70
\$221,850	\$302,400	\$369,200	\$247,500	\$305,690	\$281,870	\$266,500	\$279,724
16,487,200	13,750,000	13,270,000	18,000,000	11,628,000	11,400,000	13,080,000	14,306,548
29.6	25.	22.7	29.	19.	20.	30.5	25.
557,000	550,000	584,581	620,689	612,000	570,000	428,852	573,789
\$0.20	\$0.24	\$0.31	\$0.33	\$0.44	\$0.32	\$0.25	\$0.31
\$3,297,440	\$3,300,000	\$4,113,700	\$5,940,000	\$5,116,320	\$3,618,000	\$3,270,000	\$4,439,663
500,000	.....	400,000	440,000	539,000	568,000	323,000	411,500
25.	.....	15.2	17.	20.8	22.2	24.	20.
20,000	.....	26,315	25,882	26,165	25,585	13,458	18,900
\$0.89	.....	\$0.79	\$0.88	\$1.10	\$1.06	\$0.69	\$0.80
\$445,000	.....	\$318,000	\$387,200	\$592,900	\$602,080	\$222,870	\$373,202
135,520	.....	180,000	170,000	155,000	139,000	106,000	127,083
15.4	.....	17.2	19.	14.	12.1	14.5	13.6
8,900	.....	9,402	8,947	11,071	11,487	11,448	8,411
\$0.60	.....	\$0.76	\$0.95	\$0.56	\$0.88	\$0.85	\$0.70
\$81,312	.....	\$121,600	\$161,500	\$86,800	\$122,320	\$141,100	\$98,780
3,840,000	5,800,000	4,300,000	5,450,000	2,091,000	2,520,000	2,801,000	3,731,311
64.	84.	65.	104.	60.	66.	70.	66.
60,000	69,047	66,153	42,788	34,850	45,000	40,014	56,127
\$0.47	\$0.38	\$0.56	\$0.36	\$0.81	\$0.85	\$0.54	\$0.60
\$1,804,800	\$2,204,000	\$2,408,000	\$1,962,000	\$1,693,710	\$2,142,950	\$1,512,540	\$2,058,630
8,446,000	.....	16,500,000	12,750,000	12,000,000	15,600,000	16,250,000	10,351,880
820.	.....	750.	500.	460.	800.	716.	631.
10,300	.....	22,000	25,500	26,086	19,500	22,686	15,539
\$0.035	.....	\$0.057	\$0.065	\$0.094	\$0.06	\$0.07	\$0.033
\$265,610	.....	\$940,500	\$701,250	\$1,128,000	\$936,000	\$1,137,500	\$643,048
1,680,000	1,050,000	1,150,000	1,050,000	803,900	893,300	859,000	1,175,385
1.40	1.24	1.25	1.30	1.13	1.25	1.24	1.27
1,200,000	846,771	920,000	807,692	711,416	714,640	692,741	920,631
\$6.06	\$6.50	\$8.57	\$11.49	\$13.92	\$11.50	\$12.53	\$10.29
\$10,180,800	\$6,825,000	\$9,865,500	\$12,061,500	\$11,190,288	\$10,272,950	\$10,763,270	\$11,707,191
8,172,100	6,398,973	6,789,154	6,273,115	6,125,196	5,924,170	5,010,827	6,938,982
\$80,496,012	\$73,069,400	\$72,184,500	\$75,275,550	\$80,103,088	\$70,556,260	\$67,703,590	\$86,497,977

COMPARATIVE STATISTICS.

PRODUCTS of the State of Indiana for the years designated, each ending April 1, as collected by the Township Assessors and compiled from the State Auditor's Reports and the Bureau of Statistics.*

PRODUCTS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	Census Crop of 1879.
Horses, number	518,534	531,361	535,316	558,656	568,045	503,044	536,251	493,881	581,444
Mules, number	60,439	61,189	57,231	55,470	57,315	57,970	53,117	48,515	51,780
Cattle, number	1,055,943	1,058,621	1,067,506	1,017,368	1,065,143	1,065,143	1,254,655	1,110,623	1,363,760
Sheep, number	1,157,277	905,177	916,771	906,849	1,558,860	1,538,860	1,612,865	1,596,143	1,103,511
Hogs, number	2,185,066	2,455,354	2,575,186	2,626,541	2,008,943	4,368,965	4,104,378	3,942,241	3,186,413
Wheat, acres	1,829,585	1,492,285	1,708,870	2,220,636	2,422,480	3,109,845	3,210,547	3,093,348	2,519,665
Corn, acres	3,523,595	4,240,757	3,246,851	3,418,067	3,517,406	3,130,527	3,130,178	3,312,683	62,568,504
Oats, acres	562,516	585,350	623,689	574,251	685,492	686,901	686,279	684,822	623,531
Meadow, acres	1,023,654	1,184,010	1,256,781	1,116,423	1,011,835	735,438	868,560	864,852	..
Wheat, bushels	17,274,711	15,452,129	21,022,451	29,473,653	41,256,630	47,130,064	39,625,666	46,925,643	47,284,353
Corn, bushels	70,350,692	85,230,306	93,812,093	80,678,502	80,517,535	87,335,014	71,387,075	115,699,797	115,492,300
Rye, bushels	113,795	312,681	544,791	578,892	712,262	277,192	204,075	548,416	15,493,105
Oats, bushels	7,334,797	6,278,491	10,648,129	21,584,482	11,304,049	15,543,130	14,339,612	19,615,416	15,493,518
Potatoes, bushels	4,653,120	2,675,680	1,544,414	3,558,460	4,199,341	2,398,251	2,398,251	7,244,330	6,225,516
Barley, bushels	149,935	142,760	134,246	255,663	343,751	687,911	528,364	1,138,717	362,835
Flaxseed, bushels	277,241	304,397	376,906	407,828	1,135,170	699,134	512,788	562,270	..
Hay, tons	799,125	983,797	1,057,592	919,372	1,070,592	1,237,917	1,393,217	1,599,594	1,361,083
Wool, pounds	2,717,728	1,718,458	2,306,885	1,890,178	3,893,711	4,484,037	6,083,159	..	151,681,751
Tobacco, pounds	6,766,590	12,378,731	12,773,636	7,408,104	6,790,413	6,752,020	6,565,782	13,568,486	8,872,942

*The figures for the years 1875, 1879 and 1880 are from the Report of the Bureau of Statistics. The figures of 1880, 1881 and 1882 are estimated by the Township Trustees and compiled by the Bureau of Statistics.

[From the Bureau of Statistics.]

LIVE STOCK.*

The decrease of live stock as shown in the reports of this year is marked. This is due to the severe drought which prevailed in 1881. The short grain and forage crops of that year influenced the sale of a large per cent. of surplus live stock, and hence the decrease in the number reported this year, as shown in the following summary:

	<i>Number in 1882.</i>	<i>Decrease from last year.</i>
Horses	493,881	42,370
Cattle	1,110,623	144,032
Marketable hogs	1,655,379	120,605
Sheep	1,092,701	58,855

The following counties show the largest number of horses:

Marion county	10,264	Rush county	8,470
Tippecanoe county	9,349	Allen county	7,916
Elkhart county	9,085	Boone county	7,646
Wayne county	8,886	Kosciusko county	7,626
Randolph county	8,490	Laporte county	7,618

MULES.

Total number of mules April 1, 1882, was 48,515, a decrease of 4,602 from the previous year. The following counties show the largest number of mules:

Vanderburgh county	2,361	Jackson county	1,215
Knox county	2,325	Spencer county	1,016
Bartholomew county	1,738	Warrick county	995
Posey county	1,658	Marion county	971
Gibson county	1,604	Daviess county	962

*The National Department of Agriculture, at Washington, gives the following figures as the total number of live stock, which show a marked difference in favor of Indiana from those given by the Bureau of Statistics of this State. The differences are as follows:

	<i>Bureau of Statistics.</i>	<i>Department of Agriculture.</i>	<i>Differ- ence.</i>
Horses in Indiana	493,881	593,131	99,250
Mules in Indiana	48,515	51,779	3,264
Cattle in Indiana	1,110,623	1,342,721	232,097
Sheep in Indiana	1,595,148	1,122,631	472,518

CATTLE.

The total number of cattle reported in 1882 was 1,110,623, a decrease of 144,032 from the previous year. The counties having the largest number of cattle are as follows:

Marion county	22,096	Kosciusko county	18,083
Hendricks county	19,820	Elkhart county	17,502
Pulaski county	19,662	Boone county	17,271
Allen county	18,759	Randolph county	17,159
Jasper county	18,608	Laporte county	16,422

SHEEP.

The total number of sheep and lambs on the 1st day of April, 1882, was 1,595,148, a decrease of 17,717 from the previous year. The number of sheep killed by dogs was 39,641. Died from disease, 63,033. Slaughtered for food, 54,516. The following table gives the counties having the largest number of sheep and lambs, the number that have died or been killed by dogs, the number slaughtered for food, and also the amount of dog tax in the county:

	<i>No. of Sheep.</i>	<i>Killed by Dogs.</i>	<i>Died by Disease.</i>	<i>Slaughtered.</i>	<i>Am't of Dog Tax in County.</i>
Steuben county.	50,347	195	1,121	249	\$1,134
Lagrange county.	42,428	341	1,541	207	1,525
Adams county.	38,821	275	670	409	1,764
Owen county.	37,960	421	1,710	434	1,732
Elkhart county.	36,705	724	1,170	651	2,328
Montgomery county	36,310	1,418	1,649	406	2,438
Noble county	32,714	507	889	157	1,738
Hendricks county	30,698	503	1,065	543	2,317
Putnam county	29,356	503	1,458	471	2,252
DeKalb county	29,331	239	715	171	1,554

HOGS.

The total number of marketable hogs in the fall of 1882 was 1,655,379, a decrease of 120,605 from 1881. The following counties show the largest number of hogs:

Wabash county	56,925	Montgomery county	34,809
Rush county	46,032	Pulaski county	33,672
Henry county	37,851	Grant county	31,966
Randolph county	37,414	Boone county	31,457
Wayne county	35,104	Ripley county	31,177

SLAUGHTERED ANIMALS.

Statement of animals slaughtered for food for the year ending April 1, 1882:

Cattle	96,472
Hogs	1,214,655
Sheep	54,516

DEATH OF DOMESTIC ANIMALS.

Statement showing the number of animals that died, other than slaughtered, during the year ending April 1, 1882. Also, the per cent. these are of the whole number:

	<i>No. Died.</i>	<i>Per Cent.</i>
Sheep (killed by dogs)	39,641	2.48
Cattle	29,217	2.56
Horses	18,759	3.65
Mules	1,091	2.19
Sheep	63,033	3.80
Hogs	376,062	14.98

Table showing number of chickens, turkeys, geese, ducks, guineas, pea fowls, and eggs sold and used, and pounds of feathers picked during the years 1880, 1881, and 1882:

	1880.	1881.	1882.
Chickens, dozens	662,840	558,491	628,286
Turkeys, dozens	58,713	28,067	44,089
Geese, dozens	48,348	26,408	24,503
Ducks, dozens	21,835	14,068	15,064
Guineas, dozens	4,748	2,410	2,976
Pea Fowls, dozens	6,686	2,329	6,125
Eggs, dozens	18,531,324	17,150,641	19,188,783
Feathers, pounds	518,787	346,681	310,733

The following counties show the largest number of dozens of chicks, turkeys, geese, ducks, guineas, pea fowls and eggs sold and used for the year ending April 1, 1882:

CHICKENS.

<i>Dozens.</i>	<i>Dozens.</i>
Hendricks county 15,443	Shelby county 12,415
Boone county 13,642	Pulaski county 12,172
Rush county 12,948	Sullivan county 11,504
Johnson county 12,588	Putnam county 11,500
Wayne county 12,585	Marion county 11,441

TURKEYS.

	<i>Dozens.</i>		<i>Dozens.</i>
Morgan county	1,273	Randolph county	1,021
Tippecanoe county	1,271	Wabash county	1,019
Wayne county	1,224	Madison county	1,006
Montgomery county	1,138	Shelby county	1,003
Hendricks county	1,107	Henry county	981

GESE.

Daviess county	1,076	Franklin county	704
Montgomery county	937	Gibson county	642
Shelby county	883	Pike county	606
Orange county	844	Sullivan county	593
Morgan county	712	Hendricks county	593

DUCKS.

Montgomery county	937	Fayette county	463
Shelby county	828	Whitley county	460
Boone county	673	Randolph county	416
Marion county	556	Hamilton county	339
Madison county	507	Wayne county	338

GUINEAS.

Marion county	198	Noble county	105
Johnson county	145	Dubois county	103
Montgomery county	117	Wayne county	96
Orange county	106	Pulaski county	85
Boone county	106	Randolph county	77

PEA FOWLS.

Henry county	739	Miami county	303
Montgomery county	508	Laporte county	300
Lake county	400	Tippecanoe county	271
Marion county	316	Jackson county	235
Shelby county	314	Jay county	225

EGGS.

Elkhart county	482,390	Huntington county	415,178
Madison county	456,414	Allen county	401,184
Hamilton county	438,650	Steuben county	399,128
Randolph county	428,827	Wells county	369,279
Delaware county	421,360	Noble county	368,900

Statement showing the pounds of feathers picked during the years ending April 1, 1880, 1881, 1882.

1880.	518,787
1881.	346,681
1882.	310,733

Gibson county	18,323	Spencer county	8,004
Daviess county.	13,136	Martin county	7,713
Pike county	11,861	Dubois county	7,601
Parke county	9,685	Sullivan county.	6,615
Warwick county	8,902	Clay county	6,062

FROM THE TENTH CENSUS.

CLASSIFICATION.	Number of Establishments.	Hands Employ'd.	Capital Invested.	Wages.	Value of Materials Used.	Value of Prod-ucts.	No. of Establishments in 1870.	Increase.	Decrease.	Value of Prod-ucts in 1870.	Increase of Prod-ucts since 1870.
Agricultural implements	96	\$2,471	\$3,231,818	\$1,010,644	\$2,182,137	\$4,460,408	124	..	28	\$2,128,794	\$2,331,614
Brads and shoes	12	341	326,500	111,465	296,448	478,815	88	..	76	685,051	606,010
Bread and other bakery products	155	519	390,910	199,949	779,775	1,791,961	101	64	..	798,460	1,570,263
Brick and tile	735	4,240	1,408,234	718,254	1,306,566	1,927,858	275	460	..	3,616,068	2,282,740
Carriage and wagon material	44	1,800	1,249,008	611,128	1,306,566	2,369,723	33	11	..	2,232,787	175,029
Carriages and wagons	195	2,906	2,732,417	1,133,223	1,605,103	3,998,520	770	..	575	2,077,726	392,462
Cars—Freight and passenger	5	2,508	450,500	791,267	3,762,600	4,900,500	10	..	5	2,289,154	142,926
Clothing	228	1,700	810,640	610,114	1,386,390	2,501,816	267	..	39	..	..
Coffee and spices, roasted and ground	9	1,776	174,500	26,648	439,450	529,100	..	1	..	..	..
Confectionery	29	154	132,400	52,302	296,635	432,060	30	..	..	..	..
Coffins and burial cases, and undertakers' goods	41	394	556,100	167,844	222,975	585,466	..	..	..	..	..
Coopers	265	2,587	970,560	813,942	1,843,638	3,342,552	357	..	92	1,920,878	1,421,674
Cotton goods	4	708	1,090,000	162,829	651,434	1,155,029	4	..	..	778,047	376,982
Fertilisers	10	168	157,000	64,099	724,525	980,725	..	..	..	..	..
Flouring mill products	936	3,159	9,464,023	989,067	26,104,637	29,591,397	611	385	..	21,380,182	8,201,215
Flax, dressed	21	293	158,500	87,050	242,110	420,100	..	..	..	..	..
Furniture, not specified	251	2,860	2,243,250	1,044,391	1,597,177	3,909,591	319	68	..	3,463,200	446,391
Furniture, chairs	37	772	385,850	232,005	246,462	363,746	33	4	..	383,640	289,146
Foundry and machine-shop products	120	3,930	3,993,578	1,672,520	3,915,194	6,853,618	118	2	..	6,829,617	203,801
Glass	4	862	1,442,000	281,207	433,733	790,781	3	1	..	789,000	1,761
Iron and steel	12	2,048	2,293,000	894,921	3,293,073	4,551,403	9	8	..	2,945,005	1,706,398
Iron, nails and spikes cut and wrought	1	300	150,000	170,710	251,352	426,998	2	..	1	304,550	122,416
Leather, curried	93	182	381,552	108,060	1,192,434	1,462,776	156	..	63	1,150,397	312,379
Leather, tanned	105	303	653,319	68,761	971,201	1,266,633	197	..	92	1,310,012	43,389
Liquors, distilled	22	415	2,300,250	177,767	2,000,523	2,997,063	38	..	16	2,073,420	923,643
Liquors, malt	63	577	1,600,179	257,514	1,692,752	1,990,805	99	..	38	1,305,116	685,687
Lumber, planed	84	681	655,546	251,410	769,494	1,266,215	53	..	31	1,231,860	14,355
Lumber, sawed	2,022	10,339	7,144,088	1,671,710	9,627,097	11,459,849	1,307	..	11,459,847	2,907,963	2,907,963
Marble and stone work	156	594	358,547	260,599	427,253	960,072	91	..	75	751,293	228,189
Oil, linseed	8	106	435,000	44,715	1,128,000	1,278,906	7	1	..	600,912	678,994

	19	484	875,000	166,628	741,793	1,112,660	10	9	581,392	531,368
Paper, not specified	59	1,480	1,126,320	689,590	703,984	1,852,023	69	30	1,408,112	423,861
Printing and publishing	55	303	112,259	77,259	247,925	683,906				
Pumps	458	1,190	888,825	430,264	1,168,735	2,126,880	436	22	1,651,941	472,555
Saddlery and harness	40	628	744,850	236,304	908,133	1,437,350	59	19	1,069,404	347,916
Sash, doors and blinds										
Saws	3	64	112,000	58,050	161,000	291,000				
Sewing machine material	3	983	389,213	289,213	940,625	1,354,625	2	1	500,900	853,725
Ship-building	23	312	514,250	281,736	529,810	810,675	9	14	424,390	396,265
Slaughtering and meat packing	2	1,815	3,974,000	1,494,622	13,616,927	21,269,880				
Starch	6	347	625,000	145,800	959,740	1,276,880	3	3	848,575	929,306
Tin, copper and sheet iron ware	319	840	298,837	325,447	798,079	1,553,484	322	3	283,206	280,278
Tobacco, cigars and cigarettes	298	928	2,968,537	318,158	542,475	1,229,325	15	193	790,561	435,744
Woolen goods	86	2,298	3,628,705	1,772,018	2,926,442	3,617,197	116		4,212,737	
All other industries	4,081	9,781	5,413,528	3,134,518	6,581,585	13,920,471	90			

Comparative statistics, taken from the Compendium of the Tenth Census of the United States.

	Establish- ments.	Capital.	Average num- ber of hands employed.	Total amount p'd in wages during the year.	Value of ma- terials.	Value of pro- ducts.
1880	11,198	\$65,742,962	69,508	\$21,960,888	\$100,262,917	\$148,006,411
1870	11,847	52,052,425	58,852	18,366,780	63,135,492	108,617,278
1860	5,323	18,451,121	21,295	6,318,335	27,142,597	42,803,469
1850	4,392	7,750,402	14,440	3,728,844	10,369,700	18,725,423

PERSONS TO SQUARE MILES.

1880.	1870.	1860.	1850.	1840.	1830.	1820.
55.09	49.71	39.94	29.24	20.29	10.11	4.35

Massachusetts has 221.8 persons to the square mile; New York has 106.7; Ohio, 78.5; Illinois, 55.

The number of farms in the State in 1880 was 194,013, valued, with buildings and fences, at \$635,236,111. The farming implements and machinery were valued at \$20,476,988. The cost of building and repairing fences in 1879 was \$3,354,246 and for fertilizers, during the same year, \$340,582. The estimated value of all farm-productions sold, consumed or on hand for 1879, was \$114,707,082.

POPULATION.

1880.

Males	1,010,361
Females	967,940
Total	1,978,301
Native	1,834,123
Foreign	144,178
Total	1,978,301

White	1,938,798
Colored	39,223
Chinese	29
Indians	246
Total	1,978,301

1870.	1860.	1850.	1840.	1830.	1820.
1,680,637	1,350,428	988,416	685,866	343,031	147,148

PERSONS OCCUPIED.

Males	583,658
Females	51,422

Total	635,080
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From 10 to 15 years old	32,628 males	3,550 females
From 16 to 59 years old	517,055 males	46,972 females
Sixty years old and over	33,975 males	900 females

Total	583,658 males	51,422 females
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Males over 21 years of age	498,437
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OCCUPATIONS.

Agriculture	331,240
Professional and personal service	137,281
Trade and transportation	56,432
Manufacturing, mechanical and mining	110,127
Total	635,080

SHORT HORN BREEDERS, 1882.

MAY MEETING.

The convention met in the rooms of the State Board of Agriculture, May 29, 1882, President Nelson in the chair.

The question of writing the history of Short Horns in Indiana was informally discussed by the association, but definite action was deferred till the next meeting of the convention.

Mr. Heron, Secretary of the Board of Agriculture, was invited to read a paper, as follows:

A FEW SUGGESTIONS IN THE INTEREST OF THE STATE ASSOCIATIONS OF STOCK BREEDERS.

It is observed that in the proceedings of such meetings, where good programmes are prepared and important questions therein, we fail to find any expression from the association *as a body*; only individual opinions expressed. The sense of the meeting on all questions before it, would add to its importance, and be of much interest to the public.

A quarterly report by the Board of Agriculture, to include the proceedings of the Industrial Associations in full; the Farmers' Institute meetings as inaugurated, and all matter emanating from the Board while it is in session, would increase the interest and benefits of such meetings an hundred fold. An expression from the association on this matter is requested.

The sessions of the State Associations are held with open doors, the members not with any delegated powers, paying their own expenses, while the information obtained is for the general good and benefit, and of a public nature. Therefore, those in attendance on such meetings should, above any other convention or meeting,

have favors from the railroads, and legislative assistance; and it is respectfully suggested that a committee of one or more from each of the Industrial Associations be created to consider the suggestions as stated, and jointly arrange to carry them out, if practicable.

DISCUSSION.

Mr. Thrasher. This paper of Mr. Heron's is an important one. We have individual opinions in regard to all questions. They are never decided by the association itself. To give any matter force, I think the association should indorse or reject it. I think the paper is a good one. I admire that plan of doing business. We can not go away from here scarcely at any time and say what the convention did do. But as a convention we do not indorse anything, and never have, as I know of. There is a question I propose to bring up some time to-day or to-morrow, and I want you to think about it. I propose to alter our Constitution so that in place of it being called a Short Horn Convention, change it to Cattle Convention, and that will let in everybody who owns cattle. Those of you who have read the statistics for the last year or two know that these muley, or black cattle, have been competing very sharply, both in Europe and America, with the Short Horns. Those men are cut off from coming here and discussing the merits of their breed of cattle. If they have better cattle than we have we want to know it. So with the Jersey men; if they can not come here and discuss the merits of their cattle, they have no chance. They say, now they have no opportunity, and therefore they can not properly get the merits of their cattle before the people.

Upon motion, Messrs. Frazee, Thrasher and Matthews were appointed to report on Mr. Heron's paper.

Mr. President:

Your committee, to whom was referred the paper of Mr. Heron, have had the same under consideration, and would report that it heartily indorses the suggestions therein as to the importance of this association expressing decided opinions upon questions brought before it, and urge upon this association the necessity of so doing. We would respectfully ask the State Board of Agriculture if, at meetings held by the industrial and agricultural associations of the State, there be matters of sufficient importance, to publish the same in quarterly reports.

We also recommend that the President be authorized to appoint a member of this association to act and co-operate with any others appointed from any other association to secure reduced rates from the railroads, and such other recognitions as may be deemed just and needful.

E. S. FRAZEE,
W. W. THRASHER,
CLAUDE MATTHEWS,
Committee.

The Convention voted unanimously that the report be adopted.
Mr. Frazee here read the following paper:

WHAT IS THE CAUSE OF SHORT HORN BULLS BECOMING WORTHLESS OR NEARLY SO AT THREE OR FOUR YEARS OLD.

BY F. S. FRAZEE, OF ORANGE P. O., FAYETTE COUNTY.

Some bulls are impotent from birth, and no treatment will enable them to propagate their species. I suppose the noted lawsuit between Mr. Megibban and Mr. Bedford was the result of the bull in controversy being impotent from birth.

Bulls, as well as all other animals that are to propagate their species, must have proper treatment. The animal should be kept in a thrifty, vigorous condition. In order to do that, he should have suitable food and exercise. During the winter months the bull should have a shelter or stable to protect him from inclement weather, with a lot for free exercise. During the pleasant months he should have free access to a grass lot.

The principal food for warm weather should be good pasture. The food that nature has prepared, is that which the system craves, and is the best.

A free use of corn is injurious to any animal that is to be kept for breeding purposes. It is too heating in its nature, and has too great a tendency to lay on fat. Put young bulls or heifers in a lot and give them all the shelled corn they can eat, and the probabilities are some of them will fail to breed.

The same is true with regard to the stallion. During the war I took an imported Cleveland bay stallion to keep, belonging to the Northern Kentucky Importing Company. He was a very valuable animal, but complaints were made that he was not a sure foal getter. I turned that horse in an open lot where he could have plenty of exercise, night and day, with an open stable to protect him from the storms, and fed him on shelled oats, chopped feed and hay with a little corn. The result was vigor and action, and plenty of strong, handsome, active colts.

It is precisely so with the bull; tie him up in a stall, feed him freely on corn and timothy, and in a short time he will fail to give satisfaction in the cows he serves. I am satisfied, from dear-bought experience, that there is something in the nature of corn, when freely fed, that, to some extent, impairs the powers of generation in the bull. I suppose it is owing to its heating nature, and its tendency to lay on fat. Take the same animal and make it equally as fleshy on chopped feed, made of oats, bran, and a small quantity of corn meal, say a fourth, and it will be much more likely to breed.

It is a serious mistake to let the bull run with the cows while they are in heat. One service, or two, at most, is sufficient. The bull and cow should then be separated, and each put in a stable or lot where they can remain quiet the remainder of the day. One of the principal causes why so many young bulls are rendered comparatively worthless is the foolish fashion of allowing them to run at large with the cows. When allowed to have free access to a cow when in heat, his energies are exhausted to a greater extent with one cow than need be to serve half a dozen. The result is, fewer calves, and they more delicate when they come.

1. When bulls may be defective by nature in their powers of generation.
2. The usefulness of some is impaired by improper food.
3. Some become impotent by being tied up in the barn, and want of proper exercise.
4. Some are injured by being allowed to run with cows while in heat, when one service would answer the purpose better than a dozen.
5. Some bulls are rendered worthless by being turned out and allowed to run at large with the cows.

Dr. Stevenson. This is surely a very interesting question, and one of great importance to short horn breeders, because the barrenness of bulls and heifers is a very vexatious question, and one of considerable loss, and one we would like to get rid of if possible. I think the Short Horns have become impotent or non-bearing much more than our common scrub cattle that run in the woods. It is very rare you can find a little scrub bull but what can get calves. I know of a little bull that ran in the neighborhood where I lived, that went about the neighborhood howling, and if there was a cow bulling within two or three miles he would find it out. I knew the habits of this bull, and I had a couple of Short Horn cows that I had bought, and was anxious to breed them right, and I took them some two or three miles from home, and put them in a pasture I had. The next season they had muley calves. He found them and got them with calf. The barrenness of Short Horns depends upon the manner in which they are kept. If they run out and come poor during the winter, I believe they will breed just as well as if kept any other way. If they are kept just as scrub cattle were kept forty or fifty years ago, they will breed just as well as the scrub cattle bred then. I have had some little experience. I did not take that nice care of my Short Horns that a great many did. I did not stable them and keep hired hands to scrub and rub them. I have had some of them to run all winter without any feed, except what they got in the pasture, and I do not think that I ever raised a barren bull. So my opinion is, it is the manner of keeping that is injurious; the manner of breeding and inter-breeding. I give it as my opinion that inter-breeding is injurious, and is not confined to animals alone, but that it belongs to all animals, from man, the highest species, down. I can take you and show you where cousins have married with the very worst results. There is a man in the town in which I live, that has children crawling on the floor, *idiots*. In-and-in breeding, from man down, has a tendency to produce bad results. I think that is one reason which gives so many barren bulls. I know that Bates and other good breeders bred in and in, and they had fine cattle. But they had cattle that were imperfect. I asked one of them what the consequence was of breeding in and in, and he said when we get a good one he is as good as any. I inferred from that kind of an answer that he got a good many bad ones. I don't think it is best to make good breeders of bulls to keep them always in good condition. If they get poor in winter it is a good thing. Nature in summer seems to have supplied them with an abundance of grass, and I don't know but what nature teaches us a lesson that is of importance on the question before us. I would not want him to have any corn in summer. Buffalo herds feed on grass in summer and

winter both. There is no trouble in this respect. One reason we have so many barren heifers is, we keep them until three or four years old before we breed them. I have known bulls three years old stop breeding for one season.

Mr. Marlatt. I have been trying to take care of Short Horn cattle for over forty years. I have raised quite a number of cattle and a great many steers; I think no man has raised better steers. I think I have been very successful. I never believed we were able to get anything for nothing, and I have aimed to keep my cattle tolerably well. I have treated my heifers from Short Horn cows moderately well, and the consequence is I have never had a barren heifer to my knowledge. I have bought my pure Short Horn bulls from different breeders, have kept them from four years old up to eight or nine years old, and I have never had a bull that has failed as a breeder. I never keep them fat; sometimes they get fat in summer on grass, but hardly ever fat from being fed on corn. My steers are never fat until I want to put them on the market, and then they are never quite so fat as I would like them. In two or three cases I had bulls that I kept up and didn't give them any exercise, and they failed to breed. One of them I turned out and gave exercise for some months, and he became a fair breeder. I bought a bull in Kentucky, let him run out for several years, and he was a very sure breeder until within the last six months, during which I have had to keep him up. I could not keep him in the fields, as I found he had failed to get a portion of the cows with calf.

Mr. Wilhoit. I have been breeding Short Horns for about thirty years, and I have never had a bull to quit breeding. I bred one until six years old, and showed him around from one year old until that time, not to say fat, but in good shape. I generally keep mine in a pretty good fix. He was eleven years old this winter and breeds as surely as ever. I do not feed my cattle corn. I think that corn alone has something to do with breeding. I keep my bulls up a good part of the time. I keep them to show, and you can not show bulls if you let them run out. I do not keep them up day and night. It may be a month before show time that I keep them up. I have had one or two heifers that never bred; I have never had cows of my own to quit breeding. I don't feed corn altogether. The bulls will not be as active and have as good use of themselves as if they run out, but they are sure.

Mr. Quick. When I can have it, I prefer one-third bran and mill feed and cut oats and mix them. There is nothing like corn, but take meal or corn alone and I object to it. It might put on fat but it may spoil the breeding qualities.

Question. Did you ever try ground rye?

Answer. I never used any of it.

WHAT IS THE BEST WINTER FEED FOR SHORT HORNS?

BY GEORGE M'CLASLIN, OF FRANKLIN, INDIANA.

What is the best winter feed for Short Horns?

This is a question that my small experience and limited knowledge will not permit me to solve. What is the best winter feed for Short Horns? is a question

which men of large experience and knowledge differ upon; consequently I will not attempt to answer the question, but will only speak of some of the things which I know to be good for Short Horns.

In the first place there must be a preparation both of feed and of our stock before the cold bleak winter months are upon us. We must look out for our feed and have it stowed away ready, or as a consequence our pockets and stock will both suffer. As I said, there must also be a preparation of our stock before winter is upon us if we would have our cattle go through in proper condition. Unless we have an abundance of grass, or even if we do have this abundance it is best to begin feeding late in the summer or early in the fall, to keep our stock going up hill instead of losing flesh when the grass begins to dry up. We think about the best and cheapest feed to begin with is green corn, fodder and all, cut up in a cutting box and fed in troughs in pastures, giving one or two small feeds a day until corn begins to get dry. Might also add a little bran meal. Then when we are ready to go into our winter quarters proper, we have our cattle in good condition for standing the storms. One thing more is very essential, that of good, comfortable shelter. Men may talk about wintering cattle in the open fields or woods, in this climate. They can do it, but it will take from one-fourth to a third more feed, to say nothing about the stinging of their consciences about the thought of their cattle having to take some of the severe storms of our climate.

After all these preparations are made, it then becomes us to attend to our feeding and to give that food necessary for the comfort and best welfare of our stock. We must not only give them the food we have for them but must also give it to them in the best prepared way.

Our own experience, coupled with that of others, is to give a variety of feed. We have fed corn in the raw state; also, cooked and ground, feed bran and shorts, mixed with meal. We consider the best way to feed these is to take one-half meal, the other half bran and shorts, and mix with cut hay, oats or straw. Speaking of cooked feed, we find that stock relish it and do well, and in all it makes a very good feed; but our experience is not extensive enough to permit us to say whether the cooking will be enough better to pay for the extra trouble or not; but we are inclined to think if a man would make the right preparation, it would do.

As to grinding feed, we are decidedly in favor of that; so, also, are we in favor of cutting up all of our hay. Think there is economy in it, and cattle will do better.

The kinds of hay, we would say clover, timothy and millet—all good. Of the three, we consider clover the better, but the three mixed the best of all.

Think oil meal, fed in small quantities with other feed, very good.

As to roots, we have fed some, and find them a good feed for stock. Have fed sugar beets and turnips. The beets we chop up and feed raw. Cattle eat them very heartily and seem to do well on them. Turnips we cook or steam until soft, and when cool enough feed. Find that cattle like them very much. We feed corn fodder to our cattle and find it a good roughness. We place it in racks in our lots and allow the cattle to pick at it through the day. These rations which I have spoken of we find to be excellent winter feed for Short Horns; whether the best or not we leave for others to judge.

DISCUSSION.

Mr. Thrasher complimented the essay very highly. I will give my notions of winter feeding, and they do not differ very much from his. This last winter corn was pretty high all over the country, and it cost a good deal of money to buy it. I don't raise any corn—I raise blue grass altogether. I can buy corn, but I can't buy blue grass, and this last winter I had pretty near enough blue grass for the cattle all winter when I put them under shelter. I use oats and ship stuff from the mill, and hay. I didn't feed my cattle an ear of corn last winter, or grain, and they came out as fine as I ever had them this spring. I handle but few. I take pretty good care of them. I believe, as my friend said here before, they will breed better.

Question. Do you grind your oats?

Answer. No, sir; I chop them up in the cutting box. I don't want rotten stuff; I want them pure and nice. A great many people do not know how to use oats. After they are cut up you must wet them, the first thing you do, and when you put the mill feed on them it will, every particle of it, stick to the oats—every particle of the oats will have some of it on; but if you put the mill feed on top of the dry oats you don't have that result at all.

That is just as strong feed as I want for breeding cattle. They will come out in nice fix in the spring, and it is cheaper than anything I have ever tried. I can give a bull or a cow all they will eat for five cents.

We have always regarded timothy hay as not being very good food for cattle, but if you feed this feed I speak of, you can feed timothy hay. It is just about right to keep them loose and in proper condition. Timothy hay, fed alone, has a binding tendency in cattle, but this chopped stuff and mill feed will neutralize that. You can not give a calf, until he is a year old, anything better than shelled corn.

There is another failing in men handling cattle, as a general thing; there are some few men that are not guilty of it. We don't have enough winter pasture. During such a winter as last winter we can run along until the middle of February or March, where we had blue grass that had grown up properly. The tendency now of people in this country, generally of the farmers, is to put everything in corn that they can. If they have a little pasture, it is eaten down so close that you can not tell it was blue grass. We don't have half enough pasture in this country. We can raise the grass without work, and there is nothing that will do your stock so much good as blue grass in winter. We have some winters that they can not get at it on account of the snow. Of course we have to feed them then. I can take one calf and sell him and buy all the corn I want for a year—any way last year. If we have more blue grass I think we will not hear so much about the bulls not being active and discharging their duties.

Mr. Quick. Such a winter as winter before last, when the blue grass was covered with snow, would you recommend the feeding of corn alone, or corn and chops?

Mr. Thrasher. You can feed them nothing that will make them come out so sleek and nice as twelve months' old shelled corn. It beats anything I ever used.

Question. Do you get as good growth as if you fed them other things?

Answer. Yes, sir; the animal will always be ready, and some fellow will want to buy him every day.

A Member. My experience is, that a calf does better if his food is changed every day. Chopped stuff at night and shelled corn in the morning are better than to feed corn all the time. Corn is too concentrated a food to feed all the time. In regard to stabling cattle all the time, I have come to the conclusion that cattle are healthier to put them up and feed them, and turn them out and let them run to a straw stack, than to shelter them all the time. There is nothing so nice as a big straw stack to let them go to. My cows generally like timothy hay very well, but I much prefer clover hay to timothy hay. I don't think clover hay is very healthy feed for horses. There is nothing so good as bran and ship-stuff mixed together. Corn lays fat on the animal, but it will not grow as it will if you feed ship-stuff. That is my view of it.

Albert Marlot. I feed upwards of sixty head of cattle on my farm. Getting part of them ready for sale, I had to have them in a tolerably fair condition. I cut up my corn when it is in a condition to make good fodder, husk it and give them fodder night and morning. I cut it on a machine, and I give corn and all, and they come out in the spring in a fine condition. My calves grow at the rate of fifty or sixty, and some of them gain seventy-five pounds per month. I sold one calf, five months old, that many guessed would weigh 600 or 700 pounds. We did not weigh him, but he was a very large calf. This last winter corn was very scarce. I prepared a great deal of it with a cutting box. I put all my straw in the barn. I fed fodder in the morning and straw at night, and in the latter part of winter I saw my food was running scarce. I did not have much oats, and I had a good deal of chaff in my straw mow. Some one told me I could buy oil meal, that came from Richmond, at twenty-five dollars per ton. They were asking me twenty dollars per ton for bran. I never fed it. The question was, how was I to feed it? Some one said I must cut my fodder and put water on it, as Mr. Thrasher has stated. This took labor. I thought I could not do it. I piled the chaff on the floor, and then I took the oil cake meal and wet it first thoroughly, so as to have it thoroughly saturated; I then threw the oil cake over it, salted it a little and fed that. My cattle did as well, and my calves made as fine growth as ever I had them do on corn.

The question was asked, was that New Process meal?

Answer. It is made in Richmond, pressed in cakes, and then ground. I found it the cheapest food I could feed when bran sold at twenty-two dollars per ton. My calves sold very readily at \$1.25 each.

Mr. Quick. I have been breeding for some time, and was the only breeder in my county until three years ago. Bran and ship-stuff were always a favorite food with me for cattle. From my childhood I have had to attend to cattle. I made it a rule to feed my calves on bran and ship-stuff in very cold weather. My calves have grown pretty large. They frequently weigh 1,000 pounds at twelve months old. Mr. Forsyth, of Johnson county, was at my house a few years ago, and he insisted that I should try shelled corn. He said it was better. I had twelve calves, pretty nearly all of one age, not more than a month's difference. I separated them. Put six in a lot. Fed one lot on shelled corn and hay—the other on bran, ship-stuff and hay. I weighed them at the time I separated them. I fed them three months and

weighed them again. Those I fed on corn looked as fat, and, I think, were fatter than the others, but they did not weigh as much. At the end of four months they had not gained as much as the others by seventy-seven pounds. They had what they would eat. That satisfied me my theory was right, consequently I have used it ever since. I think I can make a larger growth of muscle and bone in large animals than to feed on corn.

Mr. Clore. I don't think there is much difference in the two feeds. The prices run pretty near together. When bran was worth \$10 per ton, which is generally the prevailing price during the summer season, and corn forty cents per bushel, I generally lay in my bran in the summer season. I like bran and shorts mixed; do not like to feed bran alone. Corn is the dearer food at these prices. I feed my bran dry.

Question. How do you keep it?

Answer. I put it up in small bins that will hold from three to four hundred bushels.

Mr. Thrasher. I never saw any of it but what would spoil. I feed bran and ship-stuff together. I feed bran and ship-stuff, except in severe weather. I feed corn and oil cake with it. In cold weather I feed them all the clover hay they will eat.

Question. State which, in your opinion, makes the best growth when they are turned on grass?

Answer. I think those fed on bran make the best growth.

Question. What proportion of bran do you feed?

Answer. Two-thirds bran and one-third meal. I consider clover hay decidedly better than timothy hay.

Upon motion of Mr. Frazee, the convention adopted the principals of Mr. McCaalin's essay, and he was tendered a vote of thanks by the convention.

AFTERNOON SESSION.

Mr. Thrasher. I offer the following resolution:

Resolved, That the Short Horn Convention now in session feels very sorry that the day we meet is Decoration Day and that we are in full sympathy with the decorators of the graves of our illustrious dead.

Carried.

Mr. Thrasher. I offer the following:

Resolved, That the constitution of this convention be so altered as to read "Cattle Breeders," instead of Short Horn, Convention.

A few remarks were made in favor of the resolution by Mr. Thrasher, and against by Messrs. Wilhoit, Matthews, Frazee and several other members.

The resolution was lost.

Mr. Matthews. I would like to call the attention of the convention, if it is in order, to the following resolution:

Resolved, That this association, believing that it would be wise and to the best interests of the Short Horn breeders of America that the American herd books should be consolidated and under the control and management of an association

of breeders, does hereby approve and indorse the action of the National Association of Short Horn Breeders, assembled at Jacksonville, Ill., in moving to purchase and control such books.

At our last National Convention, held at Jacksonville, Ill., the question was sprung on the convention as to the advisability of consolidating the herd books. We have one published in New York, by Mr. Allen; one in Lexington, Ky.; and one, also, in Ohio. The object of that movement was to purchase and control these herd books, and to issue only one, and that under the control of the National Association, thereby consolidating all these and cutting down expenses, for you will have to pay the expense of recording only in one book, whereas now stock is frequently recorded in three books. It met with such approval that a committee was appointed under the following resolutions:

1. That we recognize the necessity of a National Short Horn herd book, to be under the control of and to be published by this association.

2. That we recommend this association to appoint a committee of ten to procure a charter.

3. The capital stock shall not exceed \$50,000, divided into shares of \$25 each. When the sum of \$25,000 shall be subscribed and paid up, said association shall have authority to organize and commence business.

There were ten gentlemen on it from the different States, myself from Indiana, to solicit subscriptions of stock and to get as many shares subscribed for as we can. I go further, and ask the indorsement of this convention of the resolution passed at our National Convention.

Mr. Lockridge. I am in favor of that resolution. It is the same in spirit that has been passed upon by almost every State association up to this time. It seems to be the intention and will of the breeders in this country to have one herd book, and one only. The only opposition to this comes from the proprietors of the the American Herd Book. All the other herd books in the United States and Canada have signified their intention to drop the publication of their books, and to consolidate with the new one which is projected. I had a conversation last spring in Chicago with some Canadian stockholders of the new herd book they started last fall. They say they are willing to co-operate with their friends on this side of the line. The only opposition to the project is from the proprietors of the American Herd Book. The proposition of this company is to buy out such herd books as are willing to sell. Mr. Allen intimates that he is ready and willing to sell, but has not intimated what his price is. I have learned within a few days that the necessary \$5,000 has been raised, necessary to commence operations, and there will be a meeting of stockholders in Chicago to put the thing in operation. I think we have found by experience that one good herd book is all we want. I have had experience, and I suppose many of the rest of you have, of men coming to my place and wanting to buy animals. Some of them wanted them recorded in one book and some in another. It is a great expense to keep these animals recorded in all the herd books.

Dr. Stevenson. I am in favor of the proposition. There are some reasons which have not been stated that are of more importance than the expense. If you have

several herd books, you have different standards of pedigree and of blood. For instance, the English herd books make four crosses of the cow and five of the bull, to go into the herd books. Mr. Allen has a different standard; the Kentucky herd book has a different standard from that again; and, probably, every herd book will have its own standard. If a man goes out to buy he will be at a loss what standard to take, and when he comes to sell there is trouble there again. He wants the pedigree according to a certain herd book. The Short Horn interest is injured and the sales of cattle are injured. But if you have but one herd book, you will probably have but one standard. If a man goes out to sell cattle, he will probably sell by that standard, and all the cattle will be recorded in the same herd book. For that reason we ought to have but one herd book. England has but one herd book. If a man buys, he knows what he can rely upon.

Mr. Matthews. All those who subscribe shares of stock to-day, are entitled to vote, and all the rights of membership. A membership in this association will carry privileges with it which you can not get otherwise. They will be able to get the volumes cheaper than those who are not members. The members of this association have a right to vote, and the association governs the herd book and supervises the publication of it. It is important it seems to me, that the breeders of short horn cattle should be connected with this in the start. I have a little State pride in this thing. It is a thing that is going to be accomplished beyond all doubt. We are going to breed Short Horns as long as Indiana continues a State. We may pass off but there will be others to follow us, and Short Horns will continue to be bred as long as grass will grow here. I would like for Indianians to be interested in this just as much as Kentuckians, and men from Illinois or Missouri. Illinois and Missouri have already responded liberally. Kentucky has taken a large amount of stock and is heartily in favor of it, and the leading breeders of Ohio are indorsing it. I would like to have it indorsed by Indiana, because I believe it is a creditable movement, not only wise but something we shall be compelled, after a while, to adopt.

The resolution was carried.

HAS THE MANIA FOR RED CATTLE BEEN FOR GOOD OR BAD TO SHORT HORNS?

BY S. R. QUICK.

Mr. President and Brother Short Horn Breeders:

This question, which our association has assigned me for consideration, is of vital importance to our Short Horn interest; it is one which I think has, though not to any appreciable extent as yet, deteriorated the Short Horns; is one on which those interested in their general prosperity have not unfrequently and vainly, too, it seems, attempted by their many and able articles to unbias the fixed ideas of our breeders for this imperious fashion, this fancy for red cattle. It is a question, my

brother breeders, which must be considered, or ere long it will be suddenly made noticeable in the deterioration of our chosen breed. The mania for color is, I take it, fast reaching that point.

In the past few years every male calf of a red color, has been kept as a bull and sold for a breeder, regardless as to his fineness of points, just because he was red, and for the reason that it was the fashionable color. I have no doubt but what the mania for red Short Horns has prevented a great many men from breeding them, on account of the high price asked for a red, when a roan of better points could be purchased for less money. Now, some one may ask, then why dont you breeders make the price of your roans and reds equal? We dare not do it, for if we did, with the rage for nothing but red, and what is still worse, dark reds, we would sell all our reds, while the light reds, red and white, and roans would be left on our hands, and likely to stay there until the butcher's block is made a last resort.

That the mass of farmers and breeders in this country do not fancy anything but a red color is a fact beyond question, and for this reason, although the objection is wholly a matter of unreasonable prejudice, the best breeders are not, except in rare instances, exempt from it, and heading their herds almost exclusively with reds, not making exceptional cases even for grand forms and superior pedigrees. As to the red and white, roan and white, they outnumber all other colors in nearly every herd in the ratio of almost two to one. As their brilliant colors have for so many years been illustrious in Short Horn herds in Great Britain and America, we may as well regard it as the distinguishing characteristic color of the race, for there is no other breed of cattle that has the same rich and attractive mixing and blending of the red and white colors as is seen in well bred Short Horns. Other breeds have red animals, and white ones and roans, but no other breeds can show the same rich and brilliant blending of colors as we see in the long and fine hair of the mellow, mossy coated and well bred Short Horns. Now, while I admire, and in my breeding hold to the bright or golden red, and red and white, I think the exclusive breeding to pure reds, and especially dark reds—nearly black—or brown, as Allen terms the color, is carrying, and will continue to carry and hasten with it the retrogradation of the Short Horns, for the reasons already stated, that of, for mere domineering fashion's sake, using inferior breeding animals, because of this, in the eye of some, æsthetic color. As a general rule, I find by close observation, that the very dark reds are in company with coarse hair, instead of a rich, mossy coat, hard handlers, dark skin, and very noticeable dark or blotched noses, instead of orange colored, and usually an irritable disposition. These inferior qualities I don't pretend to say belong any more to dark reds than to other colors, and in fact I believe that any other color, for instance white, abused and misused by breeding with very inferior animals for colors sake, would have carried with it the deteriorating qualities of the dark reds. In one particular I do not coincide with Mr. Allen on the subject of red Short Horns. He says, "If a pure red is to be the rule hereafter, how will they be distinguished from a rather inferior breed—and that is the Sussex," and goes on to state that improvement has made them equal in maturity and in good quality of beef. Now, I take it, that it is not for mere color distinctions sake that the mania must be stamped, but that if persisted in the deterioration caused by dark red will bring us down on an equal with the, as he first states," "rather

inferior bred Sussex." May we not, my fellow breeders, look still farther into the future of the Short Horn race, if the dark red mania continue, and see our beloved breed brought even down on a level with the little Devons? If we breed for the best and most perfect animal, which of course is a point we all aim at, then we can take useful lessons from nature, where constitutional stamina predominates over modern effeminacy. Under this system the inferior males will not be used, whereas, through fancy for color, inferior sires are sometimes used to the deterioration of the herd. We admit that very shapely progeny sometimes come from an uncouth sire or dam, but there is more than one thing to be considered in breeding. One consideration may be damaging in the outcome of the progeny, another may be a guarantee of continuance of excellency. The offspring may, as it nears the age of its uncouth parent, take on its uncouth features; numerous remote ancestors of great merit may have contributed, through a line of breeding, to fixing a type that is sure to be manifest. But these are chances that we are not warranted in taking, because the plan is not likely to prove satisfactory. We must not lose sight of the fact that we are contending against a natural tendency to revert, in some degree or other, to the parent stock of the dark period, where man's vision was obscured and animal forms were different. But in this day and age of careful and intelligent breeding, they have been brought up from unsightly to very attractive forms. Of course we are now far from all that, but the experience of every day shows the difficulty of breeding just such animals as we, from time to time, set out to breed, although we make our selections with the greatest care. While I would, as a rule, adhere to the bright or golden reds, roans or red and white, for reason of their earlier maturity, consuming less food, more amiable disposition and better breeders and milkers, as well as for their admirable picturesque color, I would not sacrifice a really good animal because of his being a dark red, a light roan or a white. I have heard said that the money of aristocrats was brought into agricultural use by the mania for the red Short Horns, for the fanciful color, the dark reds. Such an idea is groundless. Even if moneyed men should and do invest their finance, by cause of fancy of color, who could be more favorably impressed at the sight of a herd of dark red than at one of bright reds, red and white, and roan? I, for one, sincerely hope that the clear, bright and brilliant, the picturesque and variegated colors, in Short Horn herds, may be continued for the pleasure of fanciful as well as the financial prosperity of the Short Horn interest.

DISCUSSION.

Mr. Thrasher. If I understand the essay read before us by Mr. Quick, and the reasons he states, they are to the point. I have taken that position so often before this association, that it is scarcely worth while for me to repeat it, for I am decidedly in favor of roan cattle. If any one wants to know why I am, I am prepared to give my reasons. I have also stated here, why they are more valuable than the red. I can establish this to the satisfaction of any person, that they are preferable to the red cattle. I can prove it by the best expert butchers in this, or any other country. You will notice that white bulls sell for higher prices and bring more money than any other colored bulls. That is where all our cattle originated. Mr. Quick tells one thing in his paper that is discouraging in this

matter. About every man that has a little narrow contracted red calf, will keep him for a bull, because somebody wants a red bull, whether he is any account or not. I have seen them sold that were not fit to be in any man's herd that had any reputation. It was done just because of the fashion for reds. That part of the paper I indorse most heartily, because I have seen so much of it that I am sure he is correct about that.

The animals that look nicer, to my mind, than any other, are the roans with the colors well blended. They seem to be conspicuous, and I like them better; but that is not their chief value by any means. The mania for red cattle exists no where else, to my knowledge, except in this country. We will run after red cattle until we run it clear into the ground before we quit it. That is the way we do everything; we never stop until we ruin the whole thing. I warn the young men here to-day that they had better take the back track and mix the roans with the reds a little. This mania for red cattle is ruining Short Horn breeding for the very reason that Mr. Quick stated, and that is why we should abandon it.

Three fourths of the people in Indiana that are handling cattle do not know what they have got in their pastures. The expert butchers know what they have got. They will go and pick them out and the farmers will sell them at the same rate they would other cattle in the same pasture. These experts will sell that beef for five to ten cents more on the pound than they will a steer grazing right along by that one. There is a reason for that. You will find that only occasionally they pick red stock.

We all eat beef more or less. We will get a steak in the skillet and it will turn up like an old saddle skirt, and just about as hard to eat as a saddle skirt. You cannot eat it at all. The next time you buy a piece of beef it is tender and juicy, and there is no trouble to masticate it. There is a reason for that. The farmers don't know why it is. As a general thing they do not know anything about it. There are a great many breeders of cattle that do not know a good animal when they see it; they do not know an animal that will bring a good price. You ship cattle to New York for the purpose of going to a foreign market, and the buyer will go around among them, and every once in a while he will chalk one. The seller does not know why he is doing that. Our farmers ought to be posted why that is. The result is they lose five, ten or twenty dollars on every steer those fellows chalk in that way. I might go on and tell the reason why I like colored animals, and why roans are better beef cattle than the reds. I presume we all understand it.

Mr. Frazee. How long is it since this mania for red cattle came about?

Mr. Thrasher. I don't believe I can definitely state the time.

Answer. Dr. Stevenson. 1817. All the instruction given to persons who went to England was to purchase neither roans nor whites.

Mr. Thrasher. The importations of 1847 were never beaten, except in one thing. The cattle we have now will mature at an earlier age than the importations of 1847. We had then to keep a steer until he was from four to six years old before he developed. Possibly they did not feed so highly then as we do now. We are forced now to have the cattle as fat as we can get them.

On motion, the essay was approved and indorsed.

What effect do big prices paid for cattle have on the Short Horn interest? That it has injured the Short Horn business is a proposition no person can deny. Why? Because it has discouraged a great many young men, who would have gone into the business. They see such enormous prices being paid they at once lay aside all thoughts of the business, and say, "I can't go into that; I am not able to go into it." It has discouraged a great many men who would otherwise have gone into the business. So far; it has done injury. I think it is for the good of the farmers of this country to have Short Horns on every farm in the State. I believe it would be to their advantage. It has discouraged them, and they have gone off in another direction, and have other things in the place of Short Horns. After every sale, where the prices are run up very high, it is damaging to the interest of Short Horn breeders. After the N. Y. Mills sale it was up hill business to sell cattle at reasonable prices, especially to get them in the hands of farmers. They abandoned the business—gave it up. If it had not been for these high prices they would have been on every man's farm in the country.

Mr. Frazee. There are two sides to this question. I beg leave to differ with the speaker. You get big prices for Short Horns. I think it is so much in favor of Short Horns, in comparison with the ordinary cattle of the country. I think last year I got five dollars per hundred more than my neighbors did for steers. I think that had a tendency to improve the Short Horn interest and improve the stock of the country, and cause other people to engage in the business.

Dr. Stevenson. I just want to state the difficulty about the business that is before us. It is producing some embarrassment. Your programme does not put questions in a shape that they can be voted upon. I think if the gentleman wants a decision of the house at the conclusion of the argument, let him introduce a resolution forming something we can vote up or down. We can not settle it in any other way.

Mr. ———. The gentleman has taken a different view of the subject than was assigned. We will agree with him that if we can get fifty or seventy-five cents per hundred more for our steers than for common cattle it will have a good effect. But the exorbitant prices, such as thirty or forty thousand dollars being paid for single animals, there is where evil effects originated which Short Horns have sustained. Previous to that time there were no exorbitant prices paid. A man using his judgment solely can go \$500 or \$1,000, or even more than that for certain animals, and the price can not be regarded as excessive. I think what was aimed at was the extremely high prices of the N. Y. Mills sale. In order to get the sense of the convention I move you, sir, that the exorbitant prices paid for cattle for breeding purposes, has a bad effect upon Short Horn interests.

Mr. Marlott. As far as steers are concerned, I used to sell steers one year old as my neighbors sold their cattle at two years old, and they would weigh pretty near the same. I have been in the Short Horn business since 1875, and I bought my first calf for \$105, and during that year I bought eighteen head of thorough bred cattle. The next year I sold fourteen calves that averaged me \$150. I have no trouble in selling my tails. I never have anything left over. My price has generally been from \$100, to \$125, to \$200. I sold one heifer for \$1,000. She was an exceptional heifer. I think if breeders would sell at reasonable prices and raise good animals and do as they would like to be done by, they can sell anything they raise.

Mr. Lockridge. I would like to have the resolution changed to a little different shape. We might not all agree as to what is an exorbitant price. That is a question which each individual member of this association must settle for himself. It is a question which we, nor nobody else can regulate. A thing is worth just what it will bring in the market. It may be worth a \$1,000 this year, and next year, not being the same demand, I might be willing to take \$200. It is a question of political economy—of supply and demand. Unless we fix some such price as was realized at the N. Y. Mills sale some ten years ago, I do not see how we can take a vote on the question. Even the men who bought those cattle, and paid thirty or forty thousand dollars apiece, made money on them. If you ask them they will say that they were not exorbitant prices. Some of the Dutcher cows went to England, and their owners realized immense sums. Those that remained in this country were failures, and did not realize anything. Can this convention or any other convention say what is an exorbitant price?

Dr. Stevenson moved to lay the resolution upon the table. He could see no good that could come out of it.

SECOND DAY.

Dr. Stevenson was called upon to read an essay upon the subject:

CAN BEEF AND MILKING QUALITIES BE SUCCESSFULLY COMBINED IN THE SHORT HORNS?

I regret very much my inability to write on this subject, which I consider very important to you. My health is such that I can not write, and I am unable now to deliver anything like an address that the merits of this subject demands. There is no other subject interests the Short Horn breeders and the country more than this. You know the value of our beef cattle. It is a great commercial article, and is one of our most important products, that has gone abroad and brought money into the country in return.

Milk is of not less importance. Cheese and butter, as articles of commerce, are very important. Milk cows consume, just as your bees, the products of your farms, this grass that grows upon the pasture and upon the commons. Cheese and butter not only supports the poor, but they are the greatest luxuries that we have. If we have a common purpose cow, one that will make beef equal to the best beef cattle and milk equal to our best milk cattle, we have accomplished a very important thing. If our milk is to be produced by a small breed of cattle, one that is not constructed as to yield beef profitably, the loss is very great to the country. The farmer has one or two cows for the purpose of furnishing his family with milk, but if these cows are of a breed that their calves will not make beef that is fit to ship to New York or to England, you have no men that will keep herds of cows for the purpose of raising calves to make beef.

There are probably a thousand calves sold in this city every year, maybe more, and they make the herds of cattle that come to your markets as beef every year. If it is true that the beef quality and the milking quality can not be united in the same

animal, you destroy the beef business, because the beef business grows out of the milking interest. This milk interest, in my opinion, is of more value to the country than the beef business. Milk supports more of your poor population than beef does. Your beef is consumed principally in your cities.

Can the two qualities be united in the same animal? It is true that all cattle possess the quality of fat. I do not wish to say anything against any class of cattle. The Jerseys are good milk cattle; I am not willing to say, however, that they are better than anything else. Probably the breeders of this particular breed would say that they are better, but I don't think so. When a cow has a calf, nature provides milk for that calf to suck during the suckling period. The cow loses fat, she becomes thin and poor. The fat that is lodged upon her sides and her intestines is taken up and carried to the milk. If the calf runs with the cow it becomes exceedingly fat. It gets fat from the milk. The fat exists in the system and is appropriated for that purpose. When the cow becomes dry she becomes fat. The fat that has gone to the milk is transferred back again. I think that this single fact is enough to prove that we may unite in the same animal the milk and the beef quality. They do exist together. Nature has put them together and they can not be separated.

I know that the opinion has been held that the Short Horns are not good milkers. I noticed, a few years ago, one of the Presidents of our National Society stated that principal in his address. Yet, I think, sir, that was a great mistake; because any man who will go into a herd of Short Horns, where the calves run with the cows, and see how exceedingly fat they become, must be satisfied that these cows are good milkers, and then if he will notice that these cows become thin as they suckle, he will be satisfied that the fat lodged upon them is taken up by nature and composes a part of the milk. Now a cow, to be a good milk cow, must have a capacity to eat; she must have some size, because the amount of butter she makes must come from the food she eats. If she is a small animal she will milk less. A cow that is a very small eater will not yield the amount of milk and make the amount of butter that one which is smaller and eats well will, because the butter comes from the vegetable matter which she consumes. Milk is said to consist of about eighty-five pounds of water, the balance solid matter. That water is easily obtained, but the solid matter must come from the food she eats. I think the Short Horns will give as good milk and as much milk as any other breed. I think the common scrub cattle of the country will give as much milk and as good milk, according to their size, as any other cattle. I can say the same of the Jerseys. I am willing that they shall have allowed them all any one claims for them. I also think the scrub cattle ought to be allowed all any one claims for them. But men say these cattle have not been bred for milk, and that it is impossible. Well, scrub cows do give good milk, and many know they are good milk cows. Go to your dairymen, and ask them, "What are you milking?" and they will say, "We are just milking the common cows of the country. We care nothing about the blooded Durhams or the blooded Jerseys, but we look at her bag, and look at the quantity and the quality of her milk." When we had nothing else but the common cattle, every farmer selected his cow, and every farmer sold to his butcher those that were bad milkers, so there has been a constant selection from the common cattle. I reckon

they are about as good as any we have to-day, but for an animal that will answer both purposes, for meat or for milk, there is nothing that will equal the Short Horn. I can not afford to keep any other kind. Mr. Bates, who stands at the head as a breeder of Short Horn cattle, milked his cows and sold his butter. They were raised in early days for the purpose of making milk, butter and beef. They are the common purpose cow, in my opinion. We have other breeds that are good milkers, but they do not answer the purpose of making beef.

On motion, the thanks of the Convention were tendered to Dr. Stevenson for his able address.

THE MEETING OF JUNE.

Mr. Thrasher introduced the following resolution :

Resolved, That the milk and beef qualities do now exist and can be successfully combined in Short Horn cattle.

Mr. Lancaster. I claim now a very short experience in breeding Short Horn cattle, and from several years experience in the milk dairy business, that these qualities can be combined. I have been selling milk in this city for eight years. It is my experience that grade Short Horns are the most profitable cows for the milk dairy business, yielding the largest quantity of a good quality. I have now a small herd of thoroughbreds. Some of them I have milked in the dairy out of curiosity to know just what they would do. I raised their calves by hand and I found them the most profitable. Seven years ago this spring I bought a thoroughbred bull and bred him to my common cows. I raised from that bull a number of heifers from two to three years old. I put them into a dairy. I never raised one of those heifers from that bull but what it turned out to be a first class dairy cow. They are better cows from two to three years old than we can buy over the country and pay fifty or sixty dollars per head for them.

Mr. Thrasher. Some people claim that there are one or two breeds superior to the Short Horns for milk, but I am not convinced. We know from experience that the milking and beef qualities can be combined in the Short Horns, and in the same animal. We have tried that until we know it. We wish to indorse that sentiment or reject it.

Mr. Marlott. As far as I am concerned, I can indorse it very freely. I keep nothing but Short Horns, and we never milk more than two of those cows at once. Two of them will give all the milk and butter our family needs. I have a number of cows in my herd which are very fine milkers. They give some seven gallons of milk per day in the dead of winter, at the same time keeping in fair condition. I buy no cows to suckle calves. Each cow has a calf of her own, and sometimes a cow has two calves; but it makes no difference how many I get, I raise them all within my own herd. Reserve two out of the herd for milking purposes. I think they are as good for milking purposes as any we can find. Take the two things combined, I do not think there is any breed that will excel them.

Remarks were made to the same effect by Messrs. Thrasher, Stevenson, Clore, James, Marlott, and other members of the Convention.

A paper was read by Mr. Robe, on the subject: "What is the most profitable age to sell Short Horn steers?"

WHAT IS THE MOST PROFITABLE AGE TO SELL STEERS?

BY. J. W. ROBE.

There are evidently two or three ways of raising steers, which materially affects their growth; and upon this much depends when they should go to market in order to bring the highest price, hence quantity and quality of food eaten must enter largely into a correct answer.

There are, also, two or three kinds of steers to raise which have their influence upon the most profitable age to sell.

The most profitable age, in my opinion, to sell a scrub or a Jersey steer, is either about six weeks or six months old. After this he is always kept at a loss. Hence, the manner of keeping and kind of steers both must enter into a full answer, as all have their influence upon the profits when sold. But what kind of steers to raise for profit is not so much disputed as the most profitable way of keeping steers and when to sell.

First of all, a steer may be raised by stuffing him winter and summer with all he can eat and of whatever kind of food he likes best, from calfhood up.

Secondly, he might be kept on roughness, mainly, through the winter, and plenty of grass during summer.

Thirdly, he might be kept on short rations, stinted, winter and summer. This is never done by good cattle raisers (though I have seen it done on small lots), and as it is always at a loss, we will not discuss this method of raising steers farther than to just state it.

By the first method of keeping steers they will mature about twelve months earlier than by the mode of keeping of the second. Does this pay? is the point involved in this question. Let us look at it a little from calfhood up.

First, then, suppose you give the calf all of the milk of its dam, and at about two months old begin feeding him shelled corn, shorts, oil cake, etc., changing feed often, and buying whatever suits his fancy best, with plenty of grass, thus keeping him in high condition till he is about two and a half years old and weighs about 1,500 pounds.

Second. Ordinarily the calf is allowed half of its dam's milk. If you do not wish to take half the milk a second calf may be mated, and let the two take the one cow's milk, giving them plenty of grass. When winter sets in, or if grass is short sooner, turn to hay stacks, and feed some shelled corn till plenty of grass comes again. I wintered thirty-five the past winter in good condition, without corn, on grass and hay; but it will pay well usually to feed some corn the first winter. Then grass him well through the summer, because this takes no labor to furnish; then, the next winter, rough him through on fodder and straw, stock fields,

hay and all the winter grass that can be had. The next summer grass well, and winter as before; or if you have plenty of corn, some might be fed very profitably during the latter part of the winter, coming three years old, always keeping him in good condition. Then be very sure to give him abundance of the best of grass the coming summer, and about the closing of the grazing season, after he is three years old (or at the age of three and a half years), I would send him to market. He has been with you a little longer than the first, and may weigh a little more if well kept, but has cost you much less and will bring you more clear money. All that is put on after 1,500 or 1,600 pounds is slow growth, and will hardly pay for the food consumed.

To winter him again, if corn and hay be as high as during the past winter, will cost about \$50, and, I think, will hardly pay. I will leave exact weights at different ages, and food consumed, to be given by older and more experienced cattle raisers.

I hope to hear a full and free exchange of experience upon the manner of keeping, and weight and cost of keeping, etc.

Mr. Clore. I have had some little experience in raising cattle, and the paper coincides with my experience.

Mr. Marlott. I sold some of my steers, a few years ago, at fourteen months old, and they weighed from 950 to 1,040 pounds. I kept some of them until they were three years old and past, two of them being four years old and past. Those that were three years old and past, gained 600 pounds. My experience is, that if a calf is well fed, and kept in a good growing condition, it is most profitable to sell them at three years and past.

Mr. Huddleston. My experience is, that it is better to sell after they are three years old than it is to keep them longer; that is, if they are well kept. I think they ought to be well kept all the time.

Mr. Thrasher. I indorse the paper. I am satisfied that the most profitable time to sell steers is at two and a half years, as stated in the paper. Our present breed of Short Horns will mature at any age. The calf is ready for the knife at any age. If we have not that kind of Short Horns, we ought to get rid of what we have and get that kind. The idea was exploded years ago, and is now played out, that we had to keep hogs until they were three years old. Steers have to be from three to five years old. My land is too valuable to keep cattle that long. In riding over the country, we see yearlings fat and nice, fit for the market. That is the way we should keep our hogs and cattle, and whatever we have for the market, in good condition, so that they will attract attention. The merchants in this city have their goods arranged at the very best possible standpoint, so placed that you can hardly pass without looking at them. We ought to have the same pride about keeping our stock—have them in fine fix. When the butcher or shipper goes along, he sees your cattle in good shape; you can make almost your own terms. The earlier we can mature beef the more likely it will be to meet the demands of the consumer. The first hundred pounds put on a pig we hardly even know it, but the second hundred goes deep into your pocket, or corn crib, I tell you. A man can do nothing better with hogs than to push them until they will weigh one hundred pounds and sell them. That is contrary to the general practice of the coun-

try. The reason is, because they have not tried it. It is just so with steers. You can get a steer up to two and two and a half years old much cheaper per hundred than you can add the next hundred. The next hundred will cost you as much again. At two and a half years old they should weigh from 1,500 to 1,600 pounds, if well kept. When you put on the next 200 or 300, to bring it up to 2,000 pounds, it will cost you nearly as much as the 1,600 pounds. You can make the calculation yourself. You can't get rid of it; it will do it every time. Then comes the importance of having things in good shape.

Sell as early as possible. It has been discussed in the paper how to get them to that point, and how to get them to mature and well developed, which I indorse. I make the declaration right here, if any man disputes me I am ready to meet him. One-half the farmers in Indiana have not got enough sense to make a living by farming. One reason of it is, they are putting all the land they have cleared into corn or wheat, or something of that kind. They ought to have two-thirds of their farm in blue grass. Almost all the farms in Indiana have got too little blue grass. What they have is eaten off so close that nothing can live on it. The farmer will say it is doing no good, and will break it up. It is not the fault of the land or the grass, at all. It is the fault of the farmer. It is a fact, that the older the grass field is the better it is. Is not that true of the blue grass fields, Dr. Stevenson?

Dr. Stevenson. Yes, sir.

Mr. Thrasher. In Kentucky they sell blue grass pasture and they tell how old it is and how long it has been set. The older it is the higher prices it brings.

Dr. Stevenson. Please tell us about the grub worm in the pasture that rolls up the sod like a carpet? I see some of them this year in my own blue grass. I see it not only on my farm, but in other places. It is also true in regard to meadows. They destroy them.

Mr. Thrasher. Then it would be well enough to plow them up and reset them. But I have not sown any blue grass on my place for forty years. Blue grass, once well set, you may plow it and till it ten years and sow it in clover and timothy, and let it alone, and the blue grass will come back of itself. I hate to see a plow go into a blue grass field. I don't like to see hogs rooting it up.

Mr. Sunman offered the following:

Resolved, That the most profitable age to sell Short Horns is when they are about thirty months old. Carried.

Upon motion of Mr. Lockridge the Convention resolved to invite Governor Porter to address them.

Messrs. Lockridge, Matthews and Heron were appointed a committee to carry out the above resolution by extending the invitation to Governor Porter.

AFTERNOON SESSION.

The Chairman appointed Messrs. Thrasher, Lockridge and Sunman to prepare a programme for the next meeting.

The question was asked, "Does it make any difference upon the progeny of a bull whether he is fat or poor?"

Dr. Stevenson. My opinion is, if the bull is in good health it makes no difference about his being fat or lean. He will get just as good calves, I think a little better, when he is thin. Excessive fat is considered by a great many as being a form of disease, either in man or beast. I think that fat is injurious to an animal just as much so as it would be for a man to be overloaded with fat. If an animal is diseased, he can not, of course, breed as if he were in good health.

Mr. Thomas. Would a bull in fine condition transmit his feeding qualities any better than a bull in better condition?

Mr. Sunman. That depends upon the qualities he possesses. An animal takes on fat from the qualities he possesses. These qualities are transmitted, and not the fat. If he transmits those qualities to the calf, they enable it to take on fat. Fat is not a quality, it is only a product.

The subject of Mr. Cooper's paper, "How shall we get all farmers to breed to Short Horn bulls?" was discussed by the Convention.

Mr. Cooper not having prepared a paper, Mr. Clore, Mr. Quick, Mr. Beeler, Mr. Morrett, Mr. Wilhoit, Mr. Thomas and Mr. Frazee, related their experiences.

The society heard the reports of the Secretary and Treasurer, and accepted the same.

The committee on programme made the following report: That they had appointed W. W. Thrasher of Fayette county, J. P. Forsythe of Johnson county, M. H. Anderson of Parke county, E. S. Frazee of Rush county, T. Wilhoit of Henry county, W. S. Walker of Rush county, Dr. Martin of Asbury University, G. W. Thomas of Rush county, and Prof. C. L. Ingersoll of Purdue University, to write on subjects of their own selection.

Governor Porter addressed the convention as follows:

It is pleasant to meet a company of gentlemen so zealous in their occupation. However proud you may be of what you have done you can not cease exertion so long as anything useful remains undone which can be accomplished. You come to these meetings, from year to year, to relate your various experiences, and to make suggestions by which you all may be enabled to prosecute your occupation more successfully. If before the great improvement of live stock began, some one had announced that he could, by a skillful system of crossing, and of breeding from the fittest, produce an ox for the shambles nearly twice as large as any that then existed, and of such a structure that the parts that produce the best cuts for the market should be greatly increased in size and quality, and the parts which produced the least valuable cuts should, relatively, be much diminished, he would have been in danger of being made a laughing stock.

Yet, all this has been done. Changes in domestic animals have been produced hardly less striking than those that have been produced in fruits and vegetables. These changes have been brought about by slow degrees, indeed, but very much at pleasure to suit new conditions. It is the production of these changes—the better adaptation of the animal to the wants of man—that gives zest and enthusiasm to your occupation. You do not breed for profit wholly, but as better points are developed by skillful breeding and care, the grossness of greed is refined by a higher pleasure. I have seen a farmer view his herd of fine cattle with scarcely less pride and enthusiasm than an artist views the best productions of his brush. Those fine

forms, that admirable fitness, did not come by chance. Through the farmer's knowledge and skill, largely, they came to pass. With what pride and appreciativeness will he show off points, the combination of which he supposes to denote the highest perfection which has yet been attained.

Your endeavor, from year to year, is to produce animals which will yield a larger and better quality of food, or give a larger and better product to the dairy. Your occupation is far more useful than some which are much more showy. The most intellectual and efficient people, in the long run, are those which are best fed. The ill-fed men may be great—doubtless many are—but they would be a great deal greater if well fed. I once heard General Walker, the late Superintendent of the Census, a rare scholar and thinker, in a spirited conversation, say, when asked who were destined to be the greatest people in the world, "The Americans, for they are the best fed," and he added that he thought the very best of these were likely to be in the region of Louisville, Kentucky, where he believed were to be found the best fed people in the world. Good beef has no little to do with making an intellectual race of men. The men who give to a country, by their skill and industry, wholesome and invigorating food, are doing very much to give to the country robust and large-minded citizens.

The increasing of vegetable and mineral oils in the place of animal fats, and the probable diminution of demand for these fats, may make desirable the production of cattle with less reference to fatness. It is probable that if this diminution of demand shall take place, a proper modification of structure may be brought about.

I am glad to see and welcome here, among your number, my old friend, Dr. Stevenson, a friend of my boyhood. As long as I have known him—and I knew him when he was a physician of very large practice in Putnam county—he has been an enthusiastic stock-breeder. No man in the State has done more to improve our herds and grasses. He is here to-day, full of years, full of honors, and crowned with the respect and love of all who know him.

I thank you, gentlemen, for the compliment of this call, though a very sudden one, to visit you and to address you.

A vote of thanks was tendered Secretary Heron for courtesies extended, and to the city press and the *Prairie Farmer* for full reports.

Mr. Lockridge. I move that the thanks of this Convention be given to Governor Porter for his able address.

Carried *nem. con.*

In the afternoon the Secretary and Treasurer made their reports, and the Convention elected the following officers:

President, Rev. E. S. Frazee.

Vice President, S. R. Quick.

Treasurer, W. W. Thrasher.

Secretary, T. W. W. Sunman.

Executive Committee, J. B. Forsyth, T. Wilhoit, J. Marlott.

The Convention appointed Mr. Lancaster and Rev. E. S. Frazee a committee to confer with kindred associations with regard to receiving reduced railroad rates.

Hereupon the Convention adjourned.

INDIANA JERSEY CATTLE BREEDERS.

The breeders of Jersey cattle in this State met in the Agricultural Rooms, January 3, 1883, and completed their State organization. This is an important movement, in view of the rapid development of the dairy interests of Indiana and the West generally. The Jerseys are regarded, more and more, as indispensable factors in the butter dairy interests, and we are glad to note this new organization in behalf of that important interest.

George B. Jackson, T. P. Haughey and Dr. Levi Ritter were appointed a Committee on Permanent Organization, and James C. Ratliff, W. J. Hasselman and Colonel S. F. Gray, a Committee on Constitution; Sylvester Johnson, J. D. Connor, George B. Jackson, C. C. Crockett, T. A. Floyd, W. L. Ketchum and S. F. Gray were appointed, on the motion of Mr. Connor, a committee to confer with the State Board of Agriculture, with a view to inducing them, when revising the premium list for the next State Fair, to give some consideration to the interests of the breeders of Jersey cattle.

The Committee on Permanent Organization reported the nomination of the following officers, who were elected unanimously:

President, George Jackson, Ingallston.

Vice President, Samuel McKeen, Terre Haute.

Secretary, T. A. Lloyd, Indianapolis.

Treasurer, W. T. Fenton, Indianapolis.

Board of Directors, for two years, W. J. Hasselman, Indianapolis; Theo. P. Haughey, Indianapolis; Col. S. F. Gray, Indianapolis; J. D. Conner, Wabash; for one year, A. Garretson, Pendleton; Joseph C. Ratliff, Richmond; Charles B. Stuart, Lafayette.

Dr. George B. Loring, United States Commissioner of Agriculture, was present, and addressed the meeting relative to cattle breeding for dairy purposes. He said that he had been a breeder of the Ayrshire for twenty-five years, "and had turned his back on the Jersey breed, but had been badly whipped in the fight." He spoke particularly of the delicate organization of the Jersey cow, and the difficulty in consequence of successfully breeding them. The beef-producing breeds, he said, required sluggish habits and good feeding qualities for taking on fat, while the dairy cattle required more delicate qualities and better care. He thought the introduction of Jersey blood into the breeds of the dairy added greatly to the market value of the products. He spoke of the rapid increase of the dairy business, citing as an instance that ten years ago there were but 300,000 dairy cows in Iowa, and now there are 950,000.

The association met again on February the 14th, and adopted the following

CONSTITUTION.

OBJECTS.

The object of this Association is to bring breeders of Jersey Cattle into communication.

To advance their common interests by the establishment of honorable and fraternal relations, and secure the benefits of co-operation and united action in bringing into prominence the merits of this breed of Dairy Cattle.

To collect information, and disseminate knowledge concerning this breed ; their influence upon the Dairy, and value, for the improvement of Cattle devoted to this purpose ; believing that the progress of agricultural interests of the State demands a more intimate knowledge of the value of farm and Dairy products, and that the acquisition of such knowledge will lead to the more general introduction of this Butter-producing breed.

NAME.

ARTICLE I. This Association shall be called THE INDIANA JERSEY CATTLE BREEDERS' ASSOCIATION.

ELECTIVE OFFICERS.

ART. II. The officers shall consist of a President, Vice-President and seven Directors, who, with the President and Vice-President, shall constitute a Board of Managers.

ELECTIONS.

ART. III. The President and Vice-President shall be elected annually, and at the first election under the Constitution the seven Directors shall be chosen in two classes, three to serve one year and four to serve two years, and at each subsequent election a sufficient number shall be chosen for two years to fill the Board, a majority of whom shall constitute a quorum.

ART. IV. A Secretary and Treasurer shall be appointed annually by the Board of Managers.

ART. V. All elections shall be by ballot at the annual meeting. The Board of Managers may fill all vacancies in their own number, or in the offices of Secretary or Treasurer, to hold office only until the next annual election, or until their successors shall be elected and qualified.

MEETINGS.

ART. VI. The annual meeting of the Association shall be held at Indianapolis, on the Wednesday succeeding the first Monday in January, at such place as the preceding annual meeting shall designate ; and notice shall be sent to each member by the Secretary ten days previous.

ART. VII. The Board of Managers shall manage the affairs of the Association, under such regulations and restrictions as the Association may from time to time prescribe, and shall call special meetings of the Association on the written request of ten members of the Association, for the consideration or discussion of any question of special interest.

ART. VIII. The President shall preside over the meetings, and shall have a general supervision of the affairs of the Association, and may call the Board of Managers together, or at the written request of three members shall call the Board together and order the Secretary to give notice of such meeting at least ten days previous.

DUTIES OF SECRETARY.

ART. IX. It shall be the duty of the Secretary to keep a minute of the proceedings of each meeting of the Association, and of the Board of Managers. He shall issue all notices of meetings, receive and refer to the Board of Managers all applications for membership, receive the fees and dues, paying the same over to the Treasurer, and take his receipt for all money paid to him. He shall qualify himself to give information upon topics pertaining to the breeding of Jersey cattle. He shall be furnished by the Association with the "Herd Register of A. J. C. C.," the "Island Jersey Herd Book," and such periodicals as treat upon these subjects. When requested, shall furnish tabulated pedigrees, such requests to be accompanied by a fee of one dollar. He shall have custody of the books, records and other property of the Association, and for his service shall receive such compensation as may be fixed by the Association each year.

THE TREASURER.

ART. X. It shall be the duty of the Treasurer to keep the custody of the money and keep a correct account of all the funds of the Association, and shall only pay out said moneys upon bills which have been audited by the Auditing Committee, and shall be required to give a bond in the sum of one thousand dollars, with one or more sureties.

ART. XI. The Auditing Committee shall be composed of two members of the Board of Managers, who shall be appointed by the President immediately after the annual meeting. Their duty shall be to audit all bills before being paid.

ART. XII. A committee composed of two members of the Board shall also be appointed by the President in a like manner, who shall superintend and contract for all printing.

MEMBERSHIP.

ART. XIII. All breeders or owners of thoroughbred Jersey cattle, who are residents of the State of Indiana, having been approved by the Board of Managers, may become members of this Association upon the payment of a fee of *five dollars* and such annual dues as shall be prescribed at each annual meeting, and the failure of any member to pay such annual dues within thirty days after they shall become due, shall work a forfeiture of all privileges and benefits of such membership. A firm may become members and entitled to all privileges of such membership, but only one member of such firm shall be entitled to vote during the existence of such partnership.

ART. XIV. Should it occur that any member of the Association shall be charged with willful misrepresentation in regard to any animal bred or owned by him, or any other act derogatory to the standing of the Association, the Board of

Managers shall examine into the matter, and if they shall find such charge is proven, the offending member shall be expelled at the regular annual meeting: *Provided*, That two-thirds of the members of the Association present at such meeting shall vote in favor of such expulsion.

ART. XV. This Constitution may be altered or amended by a vote of two-thirds of the members present at any annual meeting.

LIST OF BREEDERS OF JERSEY CATTLE IN INDIANA.

Joseph Amos	Huntington	Herschell Peters	Seymour
I. N. Barker	Thorntown	Dr. James McDowell	Pleasantville
C. C. Crockett	Richmond	M. H. Shryer	Bloomfield
Sid Conger	Shelbyville	Dr. Kaffman	Sullivan
J. D. Conner	Wabash	James G. Hert	Owensberg
J. P. Cox	Columbus	Jas. C. Ratliff	Richmond
S. M. Baum	Frankfort	Geo. Kimball	Greencastle
J. R. Duty	Waldron	Mrs. T. J. Johnson	Greencastle
John A. Deem	Knightstown	C. B. Stuart	Lafayette
Merwin F. Collier	Kendallville	E. H. Waldren	Lafayette
Jacob Davis	Columbus	W. F. Short	Terre Haute
J. S. Earhart	Mulberry	M. N. Satterthwaite	Columbus
T. C. Grooms	Greencastle	W. H. Fry	Indianapolis
A. Garrettsen	Pendleton	James M. Furgasen	Irvington
Dr. W. C. Hogue	Columbus	W. H. Hasselman	Indianapolis
Wm. E. Higgins	Metzger	Sanford Fostner	Indianapolis
Heath & Holden	Crawfordsville	Wm. C. Smock	Indianapolis
B. F. Hudson	Montezuma	Henry C. Adams	Indianapolis
W. P. Ijams	Indianapolis	William Crowder	Sullivan
Geo. Jackson	Inglaston	A. C. Vorhis	Bedford
Sylvester Johnston	Irvington	Geo. B. Leavitt	Bloomfield
N. R. Keyes	Columbus	Wm. Palmer	Bedford
R. A. Mayhall	New Maysville	Levi Ritter	Irvington
Henry Jordan	Greencastle	Ward Salmond	Columbus
J. F. Miller	Richmond	Dr. D. W. Voyles	Crandell
J. C. Maxwell	Crawfordsville	Mark E. Reeves	Richmond
M. McClure	Roachdale	Marion Steele	Greenfield
Cal. Remy	Hope	J. W. Sliger	Richmond
Peter Raab	Indianapolis	John Shackelford	Roachdale
James P. Ross	Wabash	Douglas Wischart	Groveland
D. C. Haster	North Manchester	S. K. Fletcher	Indianapolis
Samuel McKeen	Terre Haute	J. H. Steiner	Indianapolis
Alex. H. Furgasen	Irvington	Theo. P. Haughey	Indianapolis
C. B. Jackson	Centreville	Moore & Gilbreath	Indianapolis
C. B. Kerr	Columbus	W. L. Kelcham	Indianapolis
Samuel Royce	Terre Haute	Dr. Funkhouser	Indianapolis
A. B. Gregory	Indianapolis		

STATE DAIRYMAN'S ASSOCIATION.

The State Dairyman's Association met in the State Agricultural Rooms at 2 o'clock P. M., January 10, 1883, and was called to order by the President, J. E. Thompson. The Secretary being absent, A. L. Davis was called to act as Secretary *pro tem*.

The Treasurer, C. J. Howland, made the following report:

Dr.	To amount received from F. Beeler, Treasurer.	\$1 75
"	To amount received from membership	3 00
	Total	<u>\$4 75</u>
Cr.	By amount paid to Mr. Hammond on order	\$3 00
"	By balance on hand	1 75
	Total	<u>4 75</u>

Which was accepted and spread on the minutes.

The following essay was read:

THE BEST FEED FOR COWS TO PRODUCE THE LARGEST PROFITS IN MILK AND BUTTER.

BY GEO. JACKSON, OF MARION COUNTY.

Undoubtedly the food that will produce the most milk, and from which the finest quality and largest quantity of butter can be made, is found in the fresh and luxuriant pasture, where the cow can get an abundant supply without much toil, composed of sweet, succulent grasses that abound in old meadows. Kentucky blue grass is the best of them all, and where a good supply of this excellent variety can be obtained no other kind need be desired. It is very nutritious, and all grass-eating animals are especially fond of it and thrive rapidly with its use. Clover and timothy mixed also makes an excellent pasture, which grows rapidly, renews itself very often during a favorable season and produces a very fine quality of butter. Stock of all kinds are fond of it; it is easily raised, and is perhaps the most reliable and successful grass crop known to this section of country. In the heavy clay soils

of this part of Indiana it is a pretty hard struggle for clover to remain long in the soil. The frosts of winter raise the ground and displace the roots, and during the dry weather of the summer following the plant is liable to die, so that it is rare that a crop of clover will amount to much after the second year, and the only plan to be provided always with this excellent crop for pasture and hay is to sow a field every year. Timothy is much more hardy, and frosts and drouths seem to affect it but little, and it can be depended upon, without renewing, for many years. But as the seasons are so uncertain, and the result of a very dry one is the partial or total destruction, temporarily or permanently, of the pastures, the careful stock owner will see to it that he prepares a

SOILING CROP OF YOUNG CORN,

to be cut and fed during the hot, dry summer months, or whenever needed. A good plan is to plant the crop successively in May and early days of June, say ten days or two weeks between plantings, which insures a fresh grain feed for the cows at the times when the pastures are parched and dried. This plan should always be followed wherever cows are kept for dairy purposes. The corn should be sown thickly, in rows two and one-half or three feet apart. This admits of cultivation, and promotes the growth of the plant. I have found this green corn, during the months of July and August through a dry season, to be immensely valuable in keeping up the flow of milk when the pastures failed. It should be cut and fed to the cows in such a manner and in such quantities as to avoid waste. A good plan is to feed it in the stables. The additional labor of providing this crop is amply rewarded by the increased flow of milk, and improved condition of the cows. Green oats, millet, clover, barley, or any of the rapid-growing grasses, will answer the purpose, but corn, a large sugar variety, is best. If more is sown than is needed for summer use, it makes an excellent food for winter when carefully dried and cured and kept dry. The cows eat it with great relish.

IN WINTER THE BEST FOOD FOR COWS

in milk is good, sweet clover or a mixed hay of timothy and clover, or millet that has been cut and cured before becoming too ripe, combined with a liberal supply of corn or linseed meal, and bran, about equal quantities as to weight, with roots fed generously at least once a day. The best are carrots, beets or one of the many varieties of mangle wurtzels. The last named is esteemed highest, as it is more easily cultivated, produces very largely and keeps through the winter well. Turnips and cabbages are not suitable for food for dairy cows, as an unpleasant taste and smell on the milk and butter follow their use. A ration of light corn fodder once a day is greatly enjoyed by the cows, though they may be well fed upon richer and more nutritious food.

A VARIETY AND CHANGE OF FOOD

is essential to produce the best results, both as contributing to the general health of the animal and as a means of stimulating the digestive organs, and thus increasing

the secretion of milk. Hay, fodder, and other long feed should always be run through the cutting box. A great waste arises from feeding in any other way. A mixture of cut hay well ministered in connection with more concentrated food, as corn meal and bran, is especially beneficial, thus uniting the large quantities of coarser and less nutritious with the richer food, and the complete assimilation of the whole may be better secured. The volume or bulk of the food contributes to the healthy activity of the digestive organs, by exercising a stimulating effect on the nerves which govern them. Thus the whole organization of ruminating animals necessitates the supply of bulky food to keep them in good condition. Feed sweet and nutritious food regularly and change it often, and the best results may confidently be expected.

IT IS A SOURCE OF GREAT ECONOMY

to cut all hay, straw, and fodder fed to cows, even though there be no mixture of meal or bran with it. They will eat up very closely much that would otherwise be left and wasted if fed long. Dry corn stalks, that so many farmers leave neglected on the ground where they grew, to become a nuisance when preparing for the following crop, if cut at proper time, and after curing stacked and kept dry, cut and crushed with a suitable machine, fed to the stock in winter would become a source of great profit. Pure, clean water should at all times be accessible to the dairy cow, and is as essential for health and profit as feed, and without both of good quality and liberal quantities, the best results will not be obtained.

THE STORING OF ENSILAGE

is attracting a great deal of attention, and it is stated by those who have adopted the system to entirely fill a long felt want, and that the green crops of summer are so perfectly preserved in their general characteristics and nature as to possess about as much value as when put into the air-tight pit or silo, and that the peculiarities of the milk and butter produced from this class of food partake very clearly of that made in summer from the growing crop, besides stimulating a large flow of milk. I have no personal experience in this direction, but all reports that I have heard about the feeding of ensilage are of the most favorable and enthusiastic character. Nearly all animals are extremely fond of it, and eat it with good relish. The system, which was first adopted in France by M. Goffart, is being extensively followed in various parts of this country, as before stated, with much success.

TO INSURE THE BEST RESULTS,

and to be entirely successful, with any system of feeding requires that it be done at regular hours and in quantities suited to the wants and capacities of each animal. This entails judgment and discrimination. One cow will consume regularly more food than another, and each animal should at all times be furnished with a liberal supply of healthy diet, not merely enough to fill up the constant waste of the system, but enough, and to spare, of a food adapted to the production of a rich quality of milk. Keep the cows always in good condition, should be the key note

of every dairy farmer. It is the great secret of success, and the difference between success and failure turns upon it. Cows giving milk require more food in proportion to their size and weight than either working stock or growing animals. It is a hard struggle for a cow reduced in flesh and blood to fill up the wasted system with the food that would otherwise have gone to the secretion of milk, but if she is liberally fed, warmly stabled and with a good bed, with plenty of pure, fresh water, roots and often moist food, and properly treated to a frequent carding, with constant kindness and gentle usage, she is ready at all times to respond abundantly in the production of milk. A good cow treated in this way, under favorable circumstances can not fail to be profitable.

Considerable discussion followed, calling forth the opinions of many members as to the proper method of feeding corn stalks and hay. It was the general opinion that closely sown corn made the best dry feed when properly cured, cut with cutting box and mixed with bran and oil meal.

Mr. Broadus, of Fayette county, owing to the press of his business, did not respond to his appointment, but promised to send it in time for publication in the Annual Report.

In answer to the question, how long should a cow keep up her flow, Mr. Broadus answered that it was best for the cow to go dry at least six weeks, she needing rest for her coming work.

Mr. Raube, of Marion county, recommended that if a cow was inclined to not go dry, it was best to milk her through for fear of milk fever.

A lady present asked what was "hollow horn," and what is the cure, if any?

Mr. Elliott, of Greene county, used lye soap and salt mixed, and rubbed on the base of the horn and head. For the soft tail he split the tail, putting in salt, black pepper and salt, bathing with turpentine.

Mr. Broadus examined his herd every spring for soft tail, and if any was found he treated them as suggested by Mr. Elliott, and he had no trouble with milk fever after calving, as he thought it was a symptom.

Mr. Thompson thought hollow horn was caused by a catarrhal fever. Had never bored any horn or split the tail, but recommended the application of pine tar to head and base of horns, to protect the head from the cold air and let the blood return to the true circulation. Hollow horn was only a symptom of fever.

Mr. Jenks, of Vermillion county, asked about the blind eye, or sore eye, which finally destroyed the sight. It was answered that by bathing with strong salt water would cure.

Mr. Cristy. There were several cases of sore eyes in his section last season. Principally used salt and water bath.

In answer to the question of financial success of dairying, Mr. Cristy said it was generally successful when properly attended to, but when left to hired help was not so good.

Mr. Broadus, after five years experience, thinks his cows yield him fifty-five or sixty dollars per head. Milks about forty cows, feeding the whey from his cheese factory to the calves, mixed with oil cake. Markets most of his butter at Indianapolis, at an average of thirty cents the year round. Uses common cows and

grade Short Horns. Is introducing Holsteins, as he thinks they are best for cheese and dairy. His cheese average twelve and one-eighth cents per pound.

Mr. Steel, of Hancock county, sells all his butter at Indianapolis, at twenty-eight cents per pound.

Mr. Broadus makes one pound of cheese from ten and one-fourth pounds of milk, and one pound of butter from twenty-five pounds of milk. He uses the Fairland cans. Allows about three acres to the cow.

Mr. Jenks says it takes eleven and nine-twelfths pounds of milk for a pound of butter in his section.

Mr. Thompson, the President, made some very good remarks relating to Indiana as a dairy State.

The President introduced the following preamble and resolution, which was adopted:

WHEREAS, This Association has been aided and encouraged by the State Board of Agriculture, in their efforts to promote such interests, and believing that a more close and permanent relation in the business affairs would result to the mutual advantage of both associations; therefore,

Resolved, That the Executive Committee of this Association be requested and authorized to take such steps as shall give to the President of this body full powers in the delegate State Board of Agriculture, and, conjointly with other State Industrial Associations, ask of the General Assembly, now in session, an annual appropriation of \$1,500, for incidental expenses in the dissemination of such agricultural information.

Bill of Alex. Heron, for one-fourth cost of printing 1,500 circulars, and stamps used in sending same to various newspapers in the State, \$2.75, which was allowed and ordered paid.

The following officers were elected for the next year:

J. E. Thompson, President.

W. H. Broadus, Vice President.

S. Johnson, Secretary.

Chas. A. Howland, Treasurer.

On motion, Messrs. Thompson, Johnson and Howland were appointed Executive Committee.

After promising to make a good exhibit at the coming State Fair, the Dairy-men adjourned to meet during the State Fair, Wednesday or Thursday.

A. L. DAVIS,

Secretary *pro tem*.

INDIANA WOOL GROWERS' ASSOCIATION.

PROCEEDINGS OF MAY MEETING, 1882.

ROOMS OF STATE BOARD OF AGRICULTURE.

This Association met in semi-annual session Thursday, June 1, 1882, with President Fielding Beeler in the chair, and in accordance with the following programme:

1. President's address.
2. What is the Best Mode of Wintering a Flock of Fifty or more Sheep? W. L. Schooley, Arcana, Ind.
3. What Course shall we Pursue to Increase the Number and Quality of Sheep in Indiana, or What are the Requisites to Success? Dr. J. P. Forsythe, Forsythe's Dale, Ind.
4. What is the Most Profitable Sheep for Indiana? C. A. Howland, Indianapolis.
5. Judging the Different Brands of Sheep by Standard. T. W. W. Sunman, Spades.
6. The Reason Why Every Farmer Should Raise Sheep. I. N. Cotton, Traders' Point, Ind.
7. How shall we Breed and Manage a Flock of Common or Grade Sheep with the Greatest Profit? J. W. Clark, Arlington, Ind.

Upon motion of S. W. Dungan, the Chair appointed Messrs. Thrasher, Forsythe and Howland a committee to select an expert to award premiums on the wool.

On motion of J. L. Thompson, it was decided that the examination and award be in public.

The Chair appointed Messrs. Clark, Nixon and King a committee on programme for the next meeting.

On motion of Mr. Darnell, the hour of three o'clock was appointed as the hour for the examination of wool.

On motion the bill for printing cards of scale of points, etc., was received and ordered paid.

PRESIDENT'S ADDRESS.

For reasons that I will not elaborate or explain, I have no written address pre-

pared. I will say that I feel very much gratified, and I think all who feel interested in wool growing are gratified in seeing the very respectable turnout we have. It shows a very wide interest is being taken in the subject of wool growing and sheep husbandry, something we are all aware that has been very much lacking in the State. I say the outlook seems encouraging.

Mr. Robe. I move that Mr. Darnell be appointed a committee of one, on behalf of the wool growers, to act in conjunction with the other industrial associations to obtain reduced fare.

Carried.

Mr. Cotton. I move that a committee of one be appointed, to act with the other industrial associations, to get a small appropriation from the Legislature.

The motion was carried, reconsidered and again passed, after some discussion.

The following paper was then read :

**"WHAT COURSE SHALL WE PURSUE TO INCREASE THE NUMBER
AND QUALITY OF SHEEP IN INDIANA, OR THE
REQUISITE TO SUCCESS?"**

BY DR. J. P. FORSYTHE, OF FORSYTHE'S DALE, IND.

I would recommend the crossing with good bucks upon all common ewes of the country. Cotswold, Leicester, Lincoln, South Downs and Shropshires are all suitable for crossing with the common ewes, but would recommend all who have full-blooded ewes to select full-blooded or thoroughbred rams of as near the same blood as can be had, looking to size, constitution and quality of wool. I would recommend new beginners to buy good, common ewes, being careful to select sound, healthy, vigorous ewes, of good size and age; if of light fleece, would cross with the South Downs; if short, with either Cotswold, Leicester or Lincoln. Have seen good results by crossing half-blooded, long-wooled ewes to large Merino bucks, making large carcasses with heavy fleeces of good, medium quality of wool, which commands the highest prices in general. As to time of stinting, would recommend 1st of November as being the best time, so the ewes will drop their lambs about April 1, when the grass is growing and the ewes are strong and vigorous. You may feel sure of 100 per cent. increase. Would feed the bucks grain while breeding, letting them together one hour each day, after painting the bucks well with Venetian red, mixed with water, on the breast and between the fore legs, so they can be selected out by the paint on those that have been served. Then turn together in ten days, as before, and so on until they have been through two or three times. Then turn all together, so as to catch those that missed, if any. Would clip about May 15, as a general thing, but you must be governed by the season to some extent. Have sheep dry and on good, clean ground, and be careful to keep the wool clean and nice; tie each fleece separate and tight; pack away in sacks, so as to keep clean. Dispose of wool when you think best. Wool loses in weight when stored away.

Sheep do best when well cared for, and would advise the seeding of a suitable amount of rye in growing corn for winter and spring pasture, which is the best and cheapest feed, as it cost nothing but the seeding. It leaves the ground in much better condition for corn than if left idle. Sheep want a variety of grasses, and will pay their way by destroying weeds, briars and bushes, and deposit in return a large amount of the best of manure. To increase the number and quantity of the sheep, we must convince the farmer that it pays, and then we can make it a success. There is one other round in the ladder, and I insist upon all of my friends in sheep husbandry stepping upon it and standing firm. That is, to build up your flocks by care and attention, and not attempt to get upon an equal footing by tearing down your neighbors' flocks, as it is a bad road to fame. We should endeavor to carry our friends upward and onward. Avoid this slang, that this breed or cross is of no value, or worth raising. Let every man choose for himself. Take the innocence of the lamb for our guide with our brother, and we will become a better class of men. By so doing sheep husbandry will become both pleasant and profitable.

DISCUSSION.

Question by a member. Will wool lose in weight by keeping?

Mr. Forsythe. We tested it. We had it piled up in a big pile, but it was not in sacks.

Mr. Dungan. Did you exclude the light and air?

Mr. Forsythe. All except a couple of bundles.

Mr. Dungan. I have had the understanding that it would rather gain than lose. If it is packed closely, does it gain at first and then lose afterwards—afterwards shrink—where kept for years?

Mr. Cotton. I have never had any experience, but I believe Stewart and Youart both take the position that they lose something—a small amount. I forget the amount.

Mr. J. L. Thompson. My experience has not been such as to properly answer the question; but I have had a little experience. Last spring in shearing time I weighed some fleeces. There was one in particular that weighed twenty pounds. I sold my wool, I think, in September, and it had lost a pound.

Mr. Dungan. Did you weigh it by the same scales?

Mr. Thompson. Yes, sir.

Mr. Cotton. Tell what condition it rested in during that time.

Mr. Thompson. It was packed in a granary, and was excluded from light and air. It was surrounded by other fleeces. Where the wool rested next the bottom and sides of the granary, the floors were wet; not only wet, but greasy, and there was certainly some loss, I think—well, say five per cent., at least, would be my notion. I am satisfied that this wool of mine lost no weight.

Prof. Brown. I am not a member of this Association, and I would like for these gentlemen to tell what it is that goes away; what part of the wool there is a loss on. What is it?

Mr. Thompson. I don't expect for the man that finally uses the wool there is anything lost. I expect there is a gain. I don't expect the fibre part of the wool

gets any lighter—the actual part that is manufactured into cloth. I don't suppose there is any loss there at all.

Mr. Forsythe. I have never seen a sheep sheared, and I never saw any wool in my life taken from a sheep's back but what it was greasy, and if you take it in your hand it will foul it. They say there is wool that has no grease in it, but I have never seen any.

Mr. Cotton. I would like to have Prof. Brown explain that.

Prof. Brown. Let me say that there is nothing that grows (and hardly anything that does not grow)—a piece of compact metal—that does not contain water. Everything organic, everything that is made by life, a portion of it, is actual water; not merely the elements of water, but actual water enters into its composition. I can take a pound of wool and wash it perfectly clean, as clean as you can wash it, and dry it in the sunshine, at 100 degrees temperature. The sun will make it perfectly dry, I will say, and I can put it in a steam oven in the laboratory, that is, a box with a steam case around it, and I will bring the heat up to 220 degrees, the boiling point of water. I will keep it there an hour, and the driest wool you can get will lose five per cent. When I have done it, the fibre is brittle. It has lost the water in its composition. That is just what is the matter with wool when it is long kept, it loses its water. Old cloth that has been manufactured ten years, and laid in the store, is not worth more than half as much as cloth manufactured from new wool. That is one of the difficulties we have in buying foreign cloths over and above buying that which is made by our factories; we get wool with the water, part of its composition, in it—in its life—if I may use the expression, and it lasts as long again because it is not brittle. As it loses the water part of the composition, the fiber breaks more readily. When men get as gray-headed as I am, the hair has not much water in it; it gets brittle. We sometimes get barefooted on the top of our heads. The universal presence of water is the secret of this whole matter. In the laboratory, we learn that we must not undertake the analysis of anything until we drive this water out of it. Even granite rock that is laid out in the sun and then put into the steam chest will lose four or five per cent. of water. Our wheat will lose from twelve to fifteen per cent. of water, and it will absorb it again. Wool will absorb some too.

Mr. Cotton. Don't it lose something in the weight of this oil?

Professor Brown. Yes, sir. There is a portion of the oil in the fleece that is volatile. Oil proper is not volatile. If wool is packed in tight bales, with a strong press, it will lose very little.

Mr. Clark. If the shrinkage of wool is not more than five per cent. when it is put through a chemical process in the laboratory, we can not expect, when it is as dry as it ought to be when it is taken off of the sheep's back, to lose five per cent. Dr. Brown very justly remarks that all metals lose part of their weight in water. I knew a man that salted his wool. He put two barrels of salt on his wool, and when he took it out and put it on the market there was no salt left there.

Mr. Priot. I would like to ask the gentleman if wheat is not just as good as rye for sheep?

By a member. We had seventy acres. I think we had 200 head of sheep on it at different times. It helped the sheep. Rye seemed to be a little too loosening.

Wheat is just as good. I think we pasture our rye up to the 20th of May, and break it up and put it in corn or whatever we see fit to.

Mr. Cotton. If you turn ewes on rye before lambing time, will it produce abortion?

Dr. Stevenson. I don't think I have any experience on that subject, as to abortion. My practice has been, if I had poor lambs, to put them on rye, if I had it. It generally brings them out well. My opinion is that it will not produce abortions.

Mr. Clark. I have had no abortions.

Mr. Thrasher. I have never experimented any with rye, but my impression would be that it would have a tendency to scour sheep too much. But I don't know that. I want somebody that knows to tell about it. I want somebody that knows to tell me another thing, and a man that don't know it I don't want him to undertake to tell it. I see some sheep in the country in the spring, just before you shear them, that are very dirty and nasty. I see other flocks that are clean. That is something I can not account for—the reason why this is so. Further, in my own flock this spring and other springs (I have been raising sheep for fifty years), there will be part of them very dirty and part of them clean, after the same treatment.

Mr. Cotton. What kind of pasture is yours?

Mr. Thrasher. Blue grass, and plenty of it. I tried to remedy it by feeding them right straight along on corn. It did not prevent it. I don't like dirty wool.

Mr. Wilhoit. Take the tags off.

Mr. T. Why is it in some flocks I don't take the tags off, and they don't get dirty at all, whether you tag them or not.

Mr. Dungan. I have had a little experience in that line myself. I never could account for it. Some people are much more liable to diarrhea than others. I think it is exactly the way in certain families of sheep. I have used several imported long wool rams. Some I have owned for two or three years, and I never knew them to scour, and their lambs never scoured, that I have owned. Other sheep have scoured a good deal. I think it is characteristic of certain families of sheep. I think sheep are made to scour by salting irregularly. You allow a flock of sheep to go eight or ten days without salt, and then give them all the salt they can eat, they are quite liable to scour. If you salt sheep in wet weather, when there is a great deal of rain, it is inclined to scour them more or less.

Mr. T. I believe that is an answer, so far as it goes; but you have not touched on one point. There is a third of the sheep that would not scour, while two-thirds of them would scour very badly.

Mr. Dungan. I say it is a peculiarity of certain families of sheep. You never see a flock of sheep, unless a very small one, of the same family.

Mr. Cotton. It is hereditary; something that is transmitted from parent to offspring.

Mr. Clark. The age of the grass sheep are turned onto in the spring makes them scour, whether it be blue grass, rye, wheat or clover. A quick growth of grass of any kind will cause them to scour, when they will not scour when the growth of grass is a little more mature or older. But I have succeeded where friend Thrasher said he failed, by feeding grain when they were likely to scour. I think Mr. Dun-

gan is correct in saying some families, or strains, or breeds, scour more than others. There is greater liability to scour in large sheep than in the smaller class of sheep. Several years ago my father went to an importer of Cotswold sheep. He had a son-in-law living in the neighborhood who had Merino sheep. He wanted Cotswold sheep. He thought they were a good deal nicer for his farm. When he went to this man he says to him: Friend Clark, thee must not shut them up like thy son-in-law does; they won't do to handle that way at all. They will be doffed all over like a gang of cattle. He tried it, and experience proved it to be true. I have handled both sorts of sheep, and that has been my experience, that they will not bear handling; they will take the diarrhea and such complaints a great deal easier than the smaller kind of sheep.

Mr. Thrasher. They were all running together. As I told you before, some of them scoured and some of them did not. What is your opinion about that?

Mr. Clark. Just the reason a dose of physic would operate on you two or three times during the night, and it would not operate on me at all. There is a constitutional difference.

Mr. Dungan. If you will tag sheep real nicely and closely, and keep them tagged that way all the time, you will suffer very little from the scours. Too many people allow their sheep to go untagged, and the manure catches there and sticks and clogs, and that makes this diarrhea very much worse. If the wool was cut off and the rectum was left open, and the wool was not allowed to come in contact with the manure, there would be no trouble with scours. I think a short tail is worse than a long tail.

Mr. Forsythe. When the tail is two joints long, say two inches, they raise that and the manure goes down and don't clog.

Mr. Thrasher. I don't know whether I was very particular in measuring the tail when I cut them off. I cut them off tolerably close on purpose to prevent any clogging, and besides that, I think that they are very much more apt to get with lamb that way. I am of the opinion that I have not heard anybody give me a sufficient answer to that question, and it is certainly one of importance. My son lives on the adjoining farm to me, and he has got the same kind of sheep I have. He generally uses my ram, and this spring his sheep were all clean without any docking at all. They did not dock them at all when they sheared them. I took the wool to market along with my own, and they did not pull off a pound and throw it away. I had one sheep that came after we sheared last year, and I never cut off its tail at all. Do you think that sheep kept clean or got dirty.

Mr. Forsythe. It is a good deal owing to what kind of a wooled sheep it was.

Mr. Thrasher. The same kind as the other. I heard about this theory that Mr. Dungan has to-day expressed by Mr. McDonald in a paper that he read. He said if you left considerable of the tail it would shake the manure all off. It was lambd out in the pasture and paid no attention to at all. I began to think along this spring that McDonald's theory was true, and that it would be demonstrated in this long-tailed lamb. It kept clean longer than a great many of them. I thought it was going through until it was sheared, and be clean, but after awhile it got as bad as any of them, and a little worse, I thought, because the tail helped daub up

down below. That theory did not suit me. I was in hopes some one had experimented enough to find out a reason and a remedy for it.

Mr. Cotton. There is just as much sense in talking about preventing this scouring in sheep as there is in talking about preventing a looseness of the bowels in the human family. Sheep belong to the animal kingdom. So does man. Those are things we have to meet as they are. We may not be able to answer them in detail. All a physician can do is to aid nature. It runs in families. Certain persons on my acquaintance have never had anything like what we call diarrhea in their lives. I know of some who have it almost continually.

Mr. J. L. Thompson. I have had some little experience with sheep. I have observed the same thing that the gentleman speaks of, some being subject to scours more than others. I notice in my flock that the very best hearty feeders are affected the least. I have a few that have the chronic diarrhea. I find the whole secret is in properly tagging your sheep before they go on pasture, and, then, to arrest it, I feed oil meal and bran mixed. I find nothing better or hardly equal to oil meal to arrest the scours. In docking I think there is no doubt but what the tails should be cut an inch and a half long to prevent them from getting dirty. I find that a great deal better than cutting them off shorter, because there is a great deal of trouble in keeping them clean if their tails are too short.

President Beeler. I don't know that I can say anything that will throw any new light on this subject. My experience and observation has been that it is a very good thing, when they are running on rye or any other pasture in the spring, to have some hay that they can go to. Their appetite seems to call for hay. They will eat hay for some time after the grass is green and tender. I think that is one of the very best correctives I know of. Somebody asked a question about ewes with lamb running on rye. I have done that for several years, and I never knew any ill effects to follow from it. I had three out of forty to abort this spring that were running on rye; but I don't think that the rye had anything to do with it, because I never met with the same thing before, though I have had sheep on rye before.

Dr. Conkle. When a physician is called to a sick man afflicted with dysentery, he is very certain to diet him. The same remedy is good for the sheep family; at least it has been so in my experience. When I turned my flock into fresh green pasture some of them would likely get dirty; but if I, on the other hand, took those sheep at once and would put them upon dry feed, that trouble would stop. This is evidence enough that the fresh green grass was the cause of it.

Mr. Wilhoit. I will give you my way of handling sheep. In the first place, I tag them, cut the wool away in the spring before they come out, to keep them clean. You have mentioned hay—that is one good thing, but give them a little bran and a little oil meal. I sheared 175, and had not one but what was all right. If they are docked and tagged properly it would not hurt them to scour a little. But if you feed them a little mill-feed every day, I don't think they will ever scour much. It is a cheap feed.

Mr. Robe. Mr. Ed. Crow told me that he tagged them before he put them upon grass, and he thought he made fifteen dollars a day in tagging sheep and saving it; otherwise, it would have been lost.

Dr. Stevenson. I want to say a word or two upon this subject. First, if the condition of the bowels of every sheep was the same, if one scoured, all would scour; if one did not scour, thereby none would scour; then scouring, in part, must be from the difficult condition of the bowels. There is some peculiar disposition to irritability. That condition is probably unknown. Why one scours and another does not scour, depends upon the difficulty in the condition of the bowels. Turning them on the grass makes some scour. That is evidence to us that there is a difference in the condition. The second condition must be in the food. Because these sheep were all on dry feed none of them scoured, that is, generally, because it is not solely dependent on the condition of the bowels, but that is the remote cause why grass or any other kind of green food is thus a secondary cause. The remedy is plain enough—by putting them back on dry feed. It is just as unreasonable and just as hard to account for this difference as it is to account for the difference in the condition of the community. One will take malarial fever and another does not. We are subject to the same causes, but there is a remote cause and a distant cause that is acting in one case that does not act in the other case, so that when the air carries miasma from the swamps, rivers and creeks, it affects one and does not affect the other, and the reason it does not is to be accounted for upon the different conditions of the systems.

Mr. Forsythe. They will not use as much salt where it is left around in the pasture where they can get it. If you have not got rock salt, leave salt in boxes under the sheds, where it will be kept dry, so they will go and get it.

Question. How does this rock salt differ from other salt?

Answer. It comes in lumps. You can get it, in Liverpool, from the size of your fist to probably as large as you can lift. You take these lumps home, weighing from 300 to 400 pounds, and break them into smaller lumps, and throw them out into the field. They will not wash away. The rains will melt a little of it, but it will remain on top of the earth. Put it in the horse's manger, and feed him on top of it, and he will not get any more than he wants. If you throw it in water it will lay there a long time without dissolving. It costs a little more than the other salt, but it is the cheapest in the long run. They can not waste it, for they can only get a part of a mouthful. I have it, at Columbus, in my feed store. We have to order it from Liverpool.

Mr. Howland. Don't you think sheep ought to be hardy enough to live on good clover hay?

Mr. Quick. If they have plenty of shelter they will do it. Our common sheep will live and keep fat if they have blue grass pasture to feed on, too.

Mr. Dungan. I have no experience with rock salt, but it would not suit me on one account. I want to mix ashes with my salt all the time for everything that I salt. I have had remarkably good success with it for a number of years. I should not want to give it up. I have been raising sheep for fifteen years. I have had some experience in excessive housing, and I have had some experience in no housing at all. Last winter I had about eighty head of sheep on thirty-five acres of wheat. They did not know what it was to be under shelter during the winter. All the balance of my flock had houses and sheds that they could have access to

whenever they wanted it. I observed that those sheep, where there was not a shed in the field, run less at the nose than those sheep that were in sheds more or less. I tried the experiment. I wanted to see how those sheep would do entirely without sheds. They came out the fattest of any sheep I had. I am convinced that there is too much housing. I think it is cruel for any man who is engaged in sheep husbandry to close his sheep up at night without the privilege of getting out at all. I would not advise any man to house his sheep. If so, be very careful about housing to excess.

Mr. Quick. What good do ashes do?

Mr. Clark. Sheep, some seasons of the year, don't get a sufficient supply of potash to keep them in proper health. The ashes supply them with potash.

Mr. Quick. When you compel them to eat it don't they get too much sometimes?

Mr. Clark. It would be like feeding anything else. If you feed them sulphur, you compel them to eat that. If you grind oats and bran with corn, you compel them to eat that, when they would rather have something else.

Mr. Merritt. I am glad to meet with you. If I can be of any assistance in deciding what is the best kind of wool for Indiana to raise, and the best kind of sheep, for the mutton qualities of a sheep must be considered as well as the wool qualities, I will do the best I can to answer your questions.

Mr. Sunman. I want to ask why the samples that received the prizes in long wools received them. In what did they possess any better qualities than the others?

Answer. The fineness of fiber and gloss is what guided me in giving the prize in long wool sheep, and the evenness of the fibers—the fibers all running out the same length, no portion of it running out longer than the others.

Question. Is the gloss of any advantage?

Answer. It has its value in the goods in which it is made. The value of combing wool is the gloss. You find it in fine dress goods. It is mostly used in fine dress goods, and the reason of the decline in these long wools is the change of fashion from this glossy, stiff dress goods for the ladies, to the soft flannels, or woollen dress goods. It is simply a freak of fashion, and a question of importance to consider is what the next turn in fashion will be. We can not breed sheep quick enough to follow every fashion, but in my judgment the tendencies of the fashions will be towards finer, soft wools, rather than towards glossy, combing wools.

Mr. Howland. Does not gloss indicate health of the wool, or strength?

Answer. To some extent it does; but it indicates some other qualities besides. There are some flocks of wool where there is apparent healthfulness of the wool. So far as the fiber is concerned, it would not show anything to indicate diseased sheep, yet there is much less gloss to it than other fleeces. If you will notice closely, all those longest fibers are coarser than the bulk of the fleece. Unevenness is an indication of coarseness. Those fibers control the quality of the wool. It is impossible to separate them. When they run coarse down at the body, you can separate them and put the fleece into different grades.

Mr. Dungan. Do you advise us to discontinue raising long wools, and go to

raising something else? Will not the fashion probably change in the course of a short time? Perhaps, when it changes, it will come back to our glossy, long wool again.

Answer. Of course, that is a mere matter of judgment or guess; and one Yankee's guess is as good as another's. I will say one thing, however, that has come to our ears this spring for the first time, though I have suspected it for two years, and that is that the Cotswold sheep are not suited to our climate; they are not as healthy as other sheep. I have judged from experience that imported sheep have better wool on them when first brought here than after they have been here a year or two. That came to my ears this spring from a butcher who kills large numbers of these sheep every year.

Mr. Darnell. You don't tell me a butcher kills Cotswolds?

Answer. He told me that a large per cent. of Cotswold sheep that he was killing were diseased in the lungs.

Mr. Clark. Is there any change in the fiber of the wool of a sheep as it gets older? I refer to long-wool sheep.

Answer. So far as my experience goes, if you have a buck that has come to mature years his wool gets coarser and thinner every year as long as he lives.

Mr. Clark. I think the probability is that their being coarser wooled after they have been here than they were when they came, is owing to the change that age makes on a sheep.

Answer. That is about all there is of it, I think.

Mr. Merriitt. That may be. The first three fleeces off of a Cotswold are very much better than anything we get afterwards.

Mr. Howland. Do you make any difference as to the price you pay per pound for Cotswold and Shropshire?

Answer. We make about five cents difference.

Mr. Darnell. Ask him if he uses it here?

Answer. We don't use it here at all. The price is governed by the Eastern market all the time.

Mr. Clark. What wool is suited best to the manufacturers of this State?

Answer. What I would have to say about the other wools would pretty much answer that question. I think it would be unwise to allow the wants of the few factories in this State to influence you very much as to the kind of sheep you will keep, but it is the wants of the whole country that you have to look after. We have to look after it ourselves. The best wool is represented in the cross breeds. About one-half or five-eighths Merino is what is known in the market as the finest medium wool. Five-eighths Merino, and the rest some of the long wools, makes the best and most valuable wool for market at present. As I look on the wool there, the Oxford Down would be the best cross with your Merino of anything you have got. The other three-eighths may be Cotswold, or any long wool.

Mr. Clark. As I understand you, you want us to cross with the Merino some of these other sheep, but the Merino blood must predominate?

Answer. Yes, sir. I would think some of the Downs would make the best cross with the Merino.

Mr. Howland. If you wish a cross between the short wools and the long wools, you could not cross between the South Down and Merino.

Mr. Merritt. I am not sure how these are produced. I simply know the wool when I see it. How the cross is brought about I don't know. I selected the Oxford Down as my choice.

Mr. Robe. In talking with our wool merchant, at Greencastle, I spoke about making the Merino cross on the grade of Cotswold. He said, "Be careful, or you will get too much Merino blood." But you seem to recommend the Merino to predominate. Have you any explanation to make, or is it a difference of opinion?

Mr. Merritt. It is probably a difference of opinion. I am not considering my own wants in this at all. I am trying to give you the wants of the trade.

Mr. Darnell. You are recommending these crosses for wool only, not mutton?

Answer. Yes, sir; with reference to crossing only the Merinos, there is the same danger that there was a few years ago of running too strong into the long wools. If any one of you had asked me a few years ago whether it was wise to run into the long-wool sheep, I should have advised you to turn from the long wool, that there was long wool enough. There was enough of the combing quality to go into the Downs rather than the full-blood Cotswold. We have run a little too long; it takes a little time to turn. It is clear to me now what we want in this country—I am talking about the farmers generally—is a Merino cross all through middle Indiana. I don't know who I am hitting.

Mr. Cotton. You are not hitting anybody. We need Mr. Dungan and Mr. Darnell to raise long wools, and Mr. Thompson to raise short wools. We want them to cross.

Mr. Merritt. Somebody asked why this particular wool was the most desirable. It is because it has a gloss that no imported wool has. It is raised in no other country than this, that I know of. It is raised in the west rather than in the east.

Mr. Robe. We would like to ask why Ohio and Pennsylvania wool is quoted higher than Indiana wool?

Mr. Merritt. When you come to scoured wools it is quoted higher, but not when the wool is in the same condition. If you would go through some of the wool houses in Boston and see the wool, piles upon piles of it, you would see at a glance why it is quoted higher. It is clear of gum, washed and tied up nicely and in the most perfect condition.

Mr. Cotton. Do not they get a run in quoting Ohio wool, and is not Indiana wool sold under that?

Mr. Merritt. No, sir; it is not. I don't think Indiana wool is sold under the head of Ohio wool, because there is none of the Indiana wool that is washed of any consequence. They wash everything on the sheep in Ohio and Western Pennsylvania.

Mr. Clark. The way I meet this difference in the quotations that my friend alludes to, I ship my wool there and they sell it with Ohio wool. They have been producing wool in great quantities for a long time. My wool is Merino wool. I wash and shear it on the sheep's back and tie it up exactly as they do there, and it went in with theirs.

Mr. Merritt. There is no reason why Indiana should not raise the same wool that they do in Ohio.

Mr. Clark. There is but very little fine wool in Indiana.

Mr. Darnell. Do you have any particular time for shearing sheep?

Answer. Sheep should be sheared as soon as it becomes uncomfortable on their backs, about the same time that a man sheds his flannel.

Mr. Cotton. Is there any other locality in the United States (any other State) where wool of the same class and kind is better than in Indiana?

Answer. I don't know of any excepting that part of the State that is flat and wet. Sheep will not do so well on flat, wet lands as they do on hilly land. Anything that renders the sheep unhealthy injures the wool. You keep sheep too fat, and you injure the wool. If you house them too much, you injure the wool. It is just about the same principle that a continuously over-fed man gets feverish; his hair gets coarse and bristly and stiff. He is not in a healthy condition.

Mr. Dungan. Can you discover a difference between the fleeces of unhoused sheep and those that are housed?

Answer. I could not tell what the reason was, but I could discover a difference between the fleece off of a healthy sheep and an unhealthy one. If you will mark your healthy fleeces so you will know them, I will pick out the healthy and unhealthy ones out of your flock every time.

Mr. Dungan. You think the unhealthy ones are the ones that are housed, do you?

Mr. Merritt. Clips of wool have been brought to me by farmers who say they house their sheep, and never allowed the rain to fall on them, and the wool is not so good.

Mr. Nixon. Why is the wool not so good?

Answer. It is because the sheep are not so healthy.

Mr. Merritt. The wool will look soft and fine, but when you wash that wool it seems to injure it. It don't seem to have the vitality and the life to it. When you wash and color that wool it is too much like pulled wool—like wool that is not matured in taking it through the process of manufacture. If you take wool off a sheep, for instance, in the winter, it will be whiter when first washed than wool that is matured, and appear softer, but as soon as cooled, or it goes through the process of manufacture, it acquires a harshness which matured wool does not have.

Mr. Dungan. That proves my theory exactly, that housing sheep is not healthy for them. Of course if sheep are not healthy, the wool is not healthy.

Mr. Wilhoit. I hold if you give them plenty of ventilation and turn them out as soon as the big rains are over, they will be all right.

Mr. Beeler. I don't believe the people of this State injure themselves very much by housing their sheep.

Mr. Howland. Summer rains will not hurt sheep, but I hold that sheep should not go out into the cold rains during the winter season; especially the long wool sheep should not be out in the drenching cold rains.

Mr. Darnell. I shear my sheep from the first to the fifth of April, all the time.

Mr. Clark. I had two men near me who sheared theirs that way, and they

sheared them for the last time. They let them go out in the cold rain, and they were ready to skin the next day.

Question. Did they feed them?

Mr. Merritt. I don't know whether they fed them or not.

Mr. Robt. I would like to know what is the best condition for a farmer to bring his wool to market?

Mr. Merritt. I think that wool should always be tied up, for this reason: The dirtiest and the worst part of the fleece, if it is loose, is apt to get turned about and separated from the fleece; then no buyer will take it. It is ruleable to take in whole fleece; by that I mean all that is wool. There is sometimes dirt that would not pass as wool, but everything that belongs to the fleece proper it is ruleable to take with the fleece, if it is carefully trimmed before tying up, all the damp locks and tag locks taken off, and then rolled inside out, the best side out.

Mr. Darnell. We all do that. [Laughter.]

Mr. Merritt. To have the wool in the best shape, do not tie with bark, or rope, or anything of that kind, but small twine. Take it two turns around. Twice around holds it together. It is the best for the farmer, and best for the man who buys. Be careful and don't allow any iron wedges to fall in.

Question by Mr. Sunman. Is curly wool any more desirable than straight wool?

Mr. Merritt. Yes, sir. The crimped wool, what we call curly wool, is more desirable than straight. Straight wool is always coarser. If they were equally as fine I don't know that it would make any difference. These samples that lay straight out are always of a coarser fiber than those that have this curly characteristic.

Mr. Howland. I use twine to tie up corn fodder; then in the spring I use that same twine to tie up the fleeces, and thus use it twice and finally sell it with the wool.

Mr. Wilhoit. In buying wool would you make any difference in wool one year old, two year's old, and fresh, new wool?

Answer. No, sir; no difference as to the age. It would be the quality of the wool that would guide me. I would look carefully for moth.

Mr. Beeler. My experience coincides with the experience of some others here about sheltering sheep. If I could have my way with sheep I would never house them close or shut them up. We always have shelter for them to go under. There is no objection to the summer rains. We always have sheds that they can go into. They care nothing for clear, cold weather and will lay out of doors, almost all of them. I know with my sheep, whenever there is a little rain you will find them all striking for a shed very quick. It is with a heavy fleece like it is with a heavy suit of clothes. You get it wet and it takes some time to get it dry, and the sheep is chilled.

Mr. J. L. Thompson. I have been handling sheep for ten or twelve years, not very extensively at all—some three or four hundred. We generally keep one flock that we house carefully, that we expect to show at the fairs. It is my observation that we have more deaths from fever and other troubles in this flock than those that run out. If we have a sheep that gets to ailing from any cause, we turn it

out and it recovers, generally. I think of one now, a Merino ewe, that we kept in a little show flock. It got diseased, had a slight hacking cough, and we turned it out with the flock again. It got as well and as hardy as any sheep on the place I think the difficulty, as a general thing, though, is in overdoing things, whatever you undertake. Men will get their sheep up out of a slight shower and they forget them, neglect them, and they will stay in a poorly ventilated stable all day. I think if the sheds are properly ventilated and the sheep properly housed, there is very little trouble, and it certainly takes less sheep feed to keep them in order, and they will shear heavier fleeces. A careless man neglects everything he does. You should have your sheds at each end of your pasture. A sheep will not run toward a storm. Not one time in a hundred will he face a storm to get to his shed. He will go into the fence corners.

Mr. Wilhoit. I have been housing sheep for a good many years. I find no trouble in it. I let them take the light rains. If there is going to be a big rain I am sure to get them up. If it rains all that day I water and feed them. Let it pour down on the sheep like it did this spring, and soak them, I know it is an injury to them. I want my house tight below and well ventilated from above. I have never had any bad luck or disease. You were speaking to-day about scours. They will not bother sheep if you will tag them right.

WHAT IS THE BEST MODE OF WINTERING A FLOCK OF FIFTY OR MORE SHEEP?

BY W. L. SCHOOLEY, ARCANA, GRANT COUNTY.

First, secure good barns or sheds; divide the sheep, putting lambs by themselves, leaving one or two old ones with lambs, to train them in going to and from feed and water; put yearlings, two-year-old, and old sheep together, and breed ewes in a third flock; provide good racks and troughs for hay and grain; mix corn and oats, equal parts; or corn alone a portion of the time will do, but corn and oats I think better; the amount to be fed depends somewhat on the kind of sheep to be fed. For Merinos, feed about three pecks of the mixture to each one hundred head per day, half in the morning and half at night; Cotswold or other large sheep require more grain; feed plenty of hay or corn fodder morning and evening—clover hay is preferable to any other kind; turn them out in the morning and leave them out all day, except in stormy weather, let out to water and shut up again; a field of rye sown early in the fall is an excellent thing to turn on occasionally, if you have not good blue grass pasture; salt twice a week, regular; always bearing in mind that well wintered is half summered, as truly as the reverse.

DISCUSSION.

Mr. Dungan. I think it is preferable to grind the corn and oats together before feeding. It is more preferable than to feed them whole.

Mr. Howland. I rather object to that part of the paper which recommends the feeding of grain to all. My notion of raising sheep or cattle is to make money. If we have got to feed our steers or our sheep grain, at the present prices of sheep and grain, I would like to know where the profit comes in. I don't want sheep unless I can very nearly winter them without one particle of grain. I distinctly say I can do it, and have done it this very winter. If one will buy feed that is as high-priced as grain now is and always has been, and I have good reason to believe it always will be, here in Central Indiana, you can't expect to make much money where all is high-priced. There are breeds that don't require this stuffing during the winter season. You can bring them out in good condition in spring. Even the ewes that have lambs don't require but very little grain. I believe that sheep will be hardier and will stand the winter better, and their offspring will do better than to have them heated up by feeding them grain. I should say a little in very cold weather may be necessary, but not in such a winter as last winter. The question of vital importance to the wool grower is, "How shall we produce this wool and mutton with the least expense?" The answer to this question is what you want to get before the rising generation, that they may make a success of wool growing, and make money out of the wool business.

Question. What do you feed them?

Answer. I feed them on hay, cornstalks, grass and oats.

Question. How many sheep do you keep to the acre?

Answer. I can keep just as many sheep to the acre as you can to feed them corn.

Mr. Clark. In regard to wintering sheep without corn, I have had some experience, at a time when I had not the grain to feed them, and was not able to buy it. When they commenced lambing in the spring the lambs were poor and weakly, and if I had not helped them up to suck they would not have got up at all, they were so feeble. They were the Merino sheep. They never grew to make sheep of much size.

Question. What was the age of the buck.

Answer. He was four years old the spring the lambs came.

Question. What part of the State do you live in?

Answer. Rush county. That was several years ago. In cold weather I aim to increase the amount of food fully one-third.

Mr. Thrasher. The paper in the main was a good one. It comes from a young man. I think we should encourage young men. As to the experience of raising sheep without food, I haven't any. [Laughter.] I feed them more in the cold weather, as Mr. Clark says, than I do in better weather. But I feed them anyway. I feed them grain all winter; I feed them about two ears apiece; just throw it down on the grass and let them eat it, and my sheep are as fat as I want them. I don't want them any fatter than they are. I don't want the sheep penned up in sheds. I want good sheds in the pasture where they run, and whenever they want to gather they will do it. I notice whenever there comes a storm, either cold, rain or snow, they go into the shed and stay there until they get ready to come out. I tried shutting them up. They don't do as well as they do to let them go in when they please. I only keep about fifty to seventy-five. I have two sheds, and on

about seventy-five acres of blue grass, one at one end and the other at the other end. I have been amused to see them during the storms this winter. Just as soon as it begins to rain they go to the shed, and they know better when to come out than I do. They went in as they pleased, and I never have had sheep do better in my life. When they are shut up in pens too much heat accumulates. When I would go in there to let them out I could hardly breathe, the air that was in there was so hot. The effluvia was very unpleasant. I don't care how much straw you keep there, you can't prevent it. Have plenty of straw in these pen-sheds, and let them go in and out when they please. You need not clean them out once during the winter.

Mr. Quick. I fully concur in the remarks that Mr. Thrasher has made. I have been experimenting with sheep for some time, and I have fed a good deal of grain in my time. The past winter I fed no grain until my ewes began to lamb. Then I fed them some; I wintered about 400, and at shearing time what did not have lambs were ready for market. I fed no grain at all, except to those that had lambs, and none to them until they began to lamb. But the winter was an exception to what we generally have. This winter a year ago I fed a good deal of corn. My ground was covered with snow and ice, and they could not get to the grass. I have sheds for my sheep to go in and out at will. Whenever a storm comes up they will go in the sheds and remain there while it storms. No difference how cold it is, they will lay outside in preference to laying in the sheds, if it does not rain. I feed clover hay altogether, and let them run on blue grass, and they are fat. I want salt where my sheep can get it every day, and every hour in the day, if they want it.

WHAT IS THE MOST PROFITABLE SHEEP FOR INDIANA?

BY C. A. HOWLAND, MARION COUNTY.

In discussing the question as to what breeds of sheep can be most successfully raised in this locality, I do not deem it necessary to mention only the standard or original breeds, from which all other breeds have mainly received all the desirable qualities that sheep raisers of the present admire, and I hope to treat each breed with fairness in making my selections for the proper crosses, in order to secure a general purpose sheep, that shall, on a given amount of feed and care, bring the largest return in money. Breeders of thoroughbred sheep may make it profitable to go to unusual expense and care to perfect their breeds to sell to sheep raisers, in order that they may successfully make the proper crosses; or they may successfully, if wool is the object, raise pure blooded Merinos; or if mutton is the thing desired, the South Down. But if both *wool* and *mutton* is the object of the breeder, I should not recommend either of the above-mentioned breeds, nor a cross between the two. While I believe them to be the most hardy and the best adapted pure blooded breeds for this latitude, the light-fleeced South Down, crossed with the poor mutton qualities of the Merino, would not make a good general purpose sheep.

The Shropshire Down, perhaps, would come nearer my idea of a general purpose sheep than any of the thoroughbred breeds, if indeed it may be ranked among the pure blooded sheep. But our long and coarse-wooled Cotswold and Leicester sheep with large frames, that do not amount to much as distinct breeds, make excellent crosses with the Merino or South Down, giving the wool-grower a general purpose sheep that is hardy, of good-sized carcass, that fattens readily, making delicious mutton, and a good heavy fleece of the most salable medium wool. Sheep raising should engage the attention of all farmers in a greater or less extent, in accordance with the size of their farms; it is a more sure way of keeping your land in good condition to produce large crops of grain, and certainly more profitable than buying the various fertilizers that are so often recommended by our agricultural doctors to cure all the defects of the soil, but which generally fail to produce an additional bushel of grain per acre. Properly bred sheep may be raised to maturity and be made fit for the butcher on grass and hay, leaving all the grain raised on the farm to be sold, or fed to other kinds of stock that can not thrive on grass alone; hence we see the importance of carefully crossing the best breeds to secure a flock that may be kept at the least expense, and at the same time amply remunerate the owner for his care and the feed consumed, besides having his land pastured by his flock in a better condition than land pastured with any other kind of stock.

Inexperienced stock-raisers, desirous of having the finest stock attainable, visit our stock shows in order to make their purchases, believing that "like begets like," which is undoubtedly true in a general way, think that if they purchase sheep that look well, not stopping to inquire how the animals were raised, whether they had been stuffed from infancy with all kinds of grain at great expense in order to make them the beautiful creatures which they are, are sadly disappointed when placed upon their farms, and fed and cared for in a less expensive manner, but in a way that good stock should readily thrive. But those high-priced beauties that were to be "a joy forever," are no longer beautiful, and do not look as well as his neighbors' common sheep. But experienced stock men know that it is "not all gold that glitters," but when they have a well-bred flock of sheep that is a cross between the before mentioned breeds, they know that they possess that which is more profitable than government bonds, less fluctuating than railroad or mining stock, and though they may die, the owner would realize a larger per cent. for their wool than holders of certificates of deposit generally realize from the assets of defunct banks.

DISCUSSION.

Mr. Baker. I can not raise sheep without feeding them grain, particularly in the winter. I would like to have Mr. Howland give us his views on that.

Mr. Howland. I can only give you my experience. I do succeed without feeding them grain to any great extent. Of course if you have a sheep get the sloes, or something of that kind, you have to have corn, but when a sheep is in good condition in the fall, you can get along without feeding him corn. My theory: In this market you raise sheep for wool and mutton; you can not make either business independent of the other. No man can get rich in Central Indiana raising sheep or wool and mutton without he exercises economy, and he should keep enough of

this kind of stock to consume his surplus grass. There is no good farming done by any person that don't raise clover. He must have a certain portion of his farm in grass. It must be pastured. You can't do it by mowing your fields. If it becomes necessary to plow all summer in order to raise corn to feed your stock through winter, then I can't see where your money comes from, or why bother with your sheep and cattle; but the true plan is to graze them, and the reason I can do this is that I don't raise enough sheep to keep my blue grass pastures grazed close in the summer time. If I do, I look ahead and sow a field of rye, knowing that they have to have some green food that they may run upon in the winter time. Then I give them clover hay in connection with that. Clover hay when by itself is not good. They don't thrive so well unless they have grass or rye, or you may make it a point to sow your wheat early and let them run on your wheat. You don't want to keep large flocks in this country. No man can make so much money on a large flock as he can on a small one. Wheat is better and will yield more because it is pastured. I have no trouble in keeping my sheep in good order. They were in good order all last winter. They are in good order now, and they raised their lambs without any trouble. I intended to feed them a little grain after they had dropped their lambs, but it was not necessary. They were soon jumping and playing around lively enough. If you have got your sheep in good, thriving, fair condition, you will produce as much wool, and better wool, than if you kept them rolling fat all the winter along. They all do better the next summer. I do my steers the same way. I give them a little corn the first year when they are calves to get them through the first winter. After that they go over to the stock yards without another nubbin. I hold that no man can successfully raise steers and fatten them on corn. I have boys, and I suppose the rest of you have, and I give them to understand that they can't make their money that way. That is what we are all working for.

The principal thing is to have the kind of a sheep that you can keep without corn. I have tried it with some kinds, and did not succeed very well. With other kinds I succeeded. The way is, to get the kind of sheep that you can raise without feeding them this extra amount of corn. For when you have fed two ears of corn to a sheep every day, in the course of 100 days you are out of pocket \$1.60 that might just as well have been in your pocket, and your sheep would have been quite as well off. I have open sheds that they can go in whenever they want to, and the cold storms from the north and west can not injure them. Don't confine them unless it is in the lambing season; then in very inclement weather fasten up the ewes. If you fatten up the ewes with corn you have got them in a very good fix to lose their lambs. You want them to be in good living order in order to have their lambs do well.

Mr. Baker. Did you bring your sheep through winter before last in the way you speak of?

Answer. Very nearly. If you have a place to protect them from the storms and the wet weather, clover hay is about all they need. If snow is on the blue grass they will go and paw around and get some of it.

Question. How do you like second crop clover in comparison with the first crop?

Answer. I prefer the first crop by considerable, but the second crop will do?

Question. At what stage, with reference to its growth, do you get it?

Answer. I like to have it begin to bloom.

Question. The first crop or the second?

Answer. Both; I want some blooms over the field.

Question. Can you cure it?

Answer. I cure it so it will not mould; I don't like to have it get too far along. I don't want it so the first heads begin to fill.

Mr. Clark. I tried it last year. My sheep like the second crop better than the first. They wintered on it last winter.

Mr. Darnell. It is richer on account of the seed, isn't it?

Answer. Yes, sir.

Mr. Dungan. What cross do you regard as the most profitable cross?

Answer. I prefer the cross between the Leicester and the Cotswold, or the Merino and the South Down. It makes but very little difference. It is all owing to whether a man wants a little more wool or a little more mutton. Either is good, and either is hardy. I have a cross between the South Down and the Cotswold. They are fine, nice-looking sheep. In selecting your Cotswold buck to cross on Merino ewes, there is a point you should look after. You don't want a small body, but you don't want too large a head. It is the large-headed sheep that you want to avoid. No sheep is a fine one that has a large head. That is true of every sheep. The ewes have no trouble if the ram has not a large head.

Mr. Dungan. You speak about the Cotswold and the long wool not amounting to much as a distinct breed. I would like for you to explain yourself in regard to that.

Mr. Howland. I can do that to your own satisfaction. The general purpose sheep for this locality would not be the Cotswold or the Leicester, from the fact that they are not so hardy, and the wool is not so desirable. The South Down has a lighter fleece; but I can take the South Down and, on the same amount of food, I will produce as much wool. Although it may require more sheep, I will do it with less expense to myself, because they are so much hardier. The mutton of the South Down is more desirable, and the wool is, too, what there is of it. Keep three South Downs on the food you keep two Cotswolds, and I will have as many pounds of mutton, and a great deal better mutton, and as many pounds of wool, that will sell for more per pound.

Mr. Darnell. You got as much mutton out of three South Down sheep as you could out of two Cotswolds. How much will your South Downs weigh.

Mr. Howland. It is owing to what kind they are, and how you feed them.

Mr. Darnell. I can get Cotswolds to weigh 400 pounds.

Mr. Howland. You have got some cock and bull story now like the man who gets fleeces that weigh thirty pounds. I have a yearling South Down that weighs two hundred pounds.

Mr. Darnell. Can you, in our general market, sell South Down for more per pound than Cotswold?

Mr. Howland. I certainly can. You can take them to Buffalo, N. Y., where people know what good mutton is.

Mr. Darnell. We are not talking about foreign markets.

Mr. Howland. I will say that the reason I selected South Downs (I know other Downs that are very desirable) is, that they are the original stock. They are the most distinct breed that we have a record of. There is not that distinctness about the Oxford and Shropshire Down that there is in the South Down. In fact, the others originated, you might say, from the South Down.

Question. Which do you think is the better sheep to use as a cross, the Cotswold or Leicester?

Mr. Howland. There is very little difference. I presume the Cotswold is the hardier sheep of the two. It is the nice care which makes the money. It doesn't cost you much money to go around to see your flock on a cold day, to see that they are comfortable. In anything, it is the careful, painstaking man that gets the reward. None of these slipshod fellows have ever become rich, or ever will get rich. Do not let the expenses get away with the profits.

Mr. Thompson. You say that the Oxford and Shropshire Downs are not a distinct breed of sheep, therefore they are not fit for the general farmer. In what way does that interest or affect the general farmer?

Mr. Howland. Because I believe if you select a cross that cross should be a pure blood. I don't care what your sheep may be, they cross better from a full blood or thoroughbred. Now, the Oxford and Shropshire are not thoroughbreds. If your ram happens to be a cross, then you are not crossing with a pure blood.

Mr. Thompson. Thoroughbred and full blood are very misleading terms. If they are bred long enough to reproduce themselves is not that sufficient? Strictly speaking I believe we have no thoroughbred domestic animal except the race horse. I think there is an original starting point for everything. I think you will find Shropshires reproduce themselves.

Mr. Darnell. What I think the general farmer wants is the sheep that will make the most money. I don't think it is advisable to put a Merino buck to a Cotswold ewe. They diminish the size of the sheep, for the offspring generally takes after the sire. I think a Cotswold buck can improve any sheep you have.

Mr. Dungan. I will say, to start out with, that I congratulate my friend Howland for his very able essay, and I only hope every member of the Indiana Wool Growers' Association to whom is assigned a subject, will take the pains and bestow the labor that Mr. Howland has. Yet, at the same time, I honestly disagree with Mr. Howland in some of his opinions. I am surprised that Mr. Howland, with his facilities for knowledge, would make the remark that Cotswold sheep don't amount to much as a distinct breed. There is no better sheep bred in the world, nor a breed that is more generally admired; there is not a more distinct breed in existence than the Cotswold. I might except the Merino. There is no sheep that has developed more to a greater degree of perfection. There is not a more profitable sheep than the Cotswold sheep as a distinct breed. There is no sheep that we can cross on other breeds that will produce a more desirable cross than the Cotswold sheep. I am not here to laud the Cotswold sheep above any other sheep; yet I am here to defend them; and the boat that has always carried me safely I am ready to praise. I am surprised to hear that the Cotswold sheep is not a hardy sheep. The best writers on the subject of sheep husbandry say they are. Stewart and Youart say they are a very hardy sheep. I admit that in the hands of a careless man nothing

will succeed well. I do contend, with proper care and treatment and a knowledge of the business, that there is no breed of sheep we can be more successful with than the Cotswold as a distinct breed of sheep. There is no sheep that can be made to produce the same pounds of mutton as the Cotswold, in the same time.

Mr. Howland. We were talking about a sheep for mutton and wool. We are not talking about thoroughbred or blooded sheep, or a pure breed for crossing purposes. A general purpose sheep I was talking about.

Mr. Dungan. I say no sheep is so valuable, as a general purpose sheep, as the Cotswold.

Mr. Beeler. I think if a man is breeding a class of sheep, and doing well, he had better stick to that. He had better not change around after new things. He had better not be trying to make a cross-breed, trying to breed new breeds, or take up with anybody else's breed. He had better let well enough alone, and keep right along.

The present dog law was fully discussed, and the operations of it, so far, commended. Hon. I. N. Cotton, the author, was present, and suggested a few changes for the better, and that he did not expect to get a perfect law the first time.

WHY EVERY FARMER SHOULD RAISE SHEEP.

BY I. N. COTTON, MARION COUNTY.

In discussing this subject, I shall do it in reference to our own State in the main. The question implies that the sheep is not raised to that extent by the farmers that they should be. The question is never asked why every farmer should raise hogs. A farmer without hogs is a rare thing; even the villager sticks to his hog until the ordinance of the town clears him out.

A large per cent. of the land of this State is well adapted to the raising of sheep, it being underlaid with limestone and gravel, and even our clay subsoils, when properly drained, produce fine blue grass and red clover, two of the staples on which sheep can be kept the year round; in fact, we have but little and in this State but what is suited to the sheep. Our high, rolling lands of the southern part; our dry prairies of the north and west, with our sandy bottoms along our numerous streams, with the high lands bordering them, with their gushing springs, are the sheep's paradise.

The object of all farmers, as of all other trades and professions, is the obtaining of a livelihood and the means to educate their children, and to aid and sustain society for the bettering of humanity, and in this laudable pursuit he begins to inquire into what he can best invest his capital and labor to bring about the above results.

It being an admitted fact that the vegetable product of the farm, as far as practicable, should be converted into the animal product to facilitate transporta-

tion, the question now arises, what shall we raise on our farms without reducing their productiveness, or what can we raise and increase the productiveness? We mean both vegetable and animal, for without the vegetable we can not raise the animal. It being an admitted fact that we can not raise corn many years in succession on the same land without it becoming exhausted; also, wheat, oats and barley exhaust rapidly, and we can not raise the garden vegetable without heavy manuring, what can we produce on the farm and increase the productiveness at the same time? *I answer, sheep*, by feeding them on blue grass and clover—blue grass for spring and fall pasture, clover for hay and summer pasture. I have, and can carry sheep through the year successfully, with the productiveness of my land improved. But you ask, would I feed no grain? I answer, some grain fed in late winter and spring would add to the flesh and coat of the sheep, and who can better afford to feed grain than he who raises it from blue grass and clover sod, well manured with sheep droppings?

Now, if we can increase the productiveness of our farm with blue grass and clover, "which can not be successfully disputed," and raise sheep with profit, fed on the same, why should not every farmer raise sheep? I answer, because blue grass and clover are not the only vegetables that the sheep will feed on. They huddle about the straw stack and eat straw, in the absence of better food and shelter; and they will trim the stalk-field a little closer than any other domestic animal; and while I am not an advocate of letting weeds and briars grow to feed them on, they are a natural product of the soil, and in our fight against them, we have no better help among the domestic animals than the sheep; and those farmers that are too slovenly or lazy to cut the weeds and briars, should especially be induced to keep a few sheep. But you say that he is not the man to keep sheep. No, he is not the man to keep any kind of stock to much profit, but what of the domestic animals would he do better with than the sheep? While sheep will pay as well for extra care as any of our domestic animals, they will live and produce some income in the hands of the sloven.

Mr. President, I hear some one say that we will be overstocked. In reply, in this State we have one sheep to fifteen acres of land, and a fraction over two pounds of wool per year per capita to the population, while the United States only produces about one-half the wool consumed, importing the balance. With our cheap lands we should not only produce all the wool that we consume, but should export rather than import.

Some one may ask how he should commence to raise sheep. I would advise the common farmer to commence by purchasing the common grade ewe, using a thoroughbred buck of whatever stock he may think best suited for his locality, looking to wool and mutton combined for his profits, and not imagine that he can make a fortune by purchasing some highbred sheep, and at once launching into the business of raising thoroughbreds from the fact that he has seen a few sold at some fair at fancy prices, but leave that business to the specialist.

Mr. President, I will now give you some of my experience with sheep. Six years ago I purchased some grade Cotswolds at six dollars per head, bred them to a Shropshire Down buck, obtained sixteen ewe lambs, which at the age of two years sheared 155 pounds of wool, and raised twenty lambs. Now for profit, as follows:

155 lbs. of wool at twenty cents per lb.	\$38 75
Seven buck lambs sold to neighbors for breeders	38 00
Thirteen ewe lambs at \$5 each	65 00
Total sale	\$141 75

These sheep had no better care than the average farmer can give his sheep. I do not mean the farmer that leaves his hogs to sleep in the mud, or his cow to shelter under the leeward of a rail fence.

I wintered on clover hay, with a little corn in the months of February and March, with a run on a stalk field through the day, with plenty of salt and water.

I do not consider the result extraordinary, but give it to show that every farmer should raise a few sheep, and that the profits will not fall short of the profits on other stock.

Mr. President, I will now change the question and ask why every farmer does not raise sheep?

There are some who are wedded to the customs of their fathers and never get out of the same ruts, who live on hog and hominy because dad did, and are as unchangeable as the laws of the Medes and Persians; but there is a class of intelligent farmers that I have interviewed on raising sheep who say that they can not take the risk of having their sheep killed by dogs, and that the expense of corraling every night takes too much of the profit. Mr. Conner, in his late report, estimates the number of dogs in Indiana at two hundred thousand, and the cost of keeping (at ten cents per day) at five million dollars annually, and statistics show that these dogs destroy one hundred thousand dollars worth of sheep annually, and it is no surprise to me that many intelligent farmers refuse to raise sheep with these figures staring them in the face; but every one of them that we can induce to raise a few sheep, so soon as he has one killed by the dogs becomes an enemy of that worthless cur that is eating the bread and meat of many half-fed children. And, in conclusion, let every farmer raise sheep, that sheep may increase and the cur may decrease.

HOW SHALL WE BREED AND MANAGE A FLOCK OF COMMON OR GRADE SHEEP TO OBTAIN THE GREATEST PROFIT?

BY JOHN W. CLARK, ARLINGTON, IND.

As a proper and neat handling of the fleece of sheep enhances the profits of the flock, care should be taken to have the shearing so done that the fleece, when thrown upon the table for tying, can be easily arranged for folding, so as to bring the part of the fleece that comes off the front part of the body of the sheep on the outside, and the roller drawn with sufficient force to compress the fleece into about nine or ten inches in length, and from six to nine inches in diameter, which should then be

tied with three twine strings, one in the middle, and one tied two and one-half inches from each end so as to hold the fleece in a cylindrical form.

If the flock owner hires his shearing done, it is far from the best policy to be ruled in his selection of a shearer either on account of his being a brisk shearer or a low priced one; but select one who will handle the sheep kindly, take the wool off smoothly; and lastly, but by no means of the least importance, to leave the hide on the sheep.

The appearance of wool, when thus handled, will generally increase the price from one to three cents per pound above what it would bring if torn to pieces by rough, hasty handling, with, perhaps, occasionally a little manure mixed in.

The time of shearing in this latitude should not be before the middle of the fifth month (May), and often not till the beginning of the sixth (June). A cool rain, or cool spell for some hours after a rain, is very injurious to recently sheared sheep, from which they should always be sheltered for from ten days to two weeks after shearing, in which the shepherd should be guided by the number of degrees the thermometer falls, and not by the temperature of the degree to which it falls; for instance, at such times it will injure recently sheared sheep worse for the thermometer to fall from 85° to 50°, than from 60° to 40°, especially those suckling lambs. Without rain they seldom receive perceptible injury from changes of temperature after the time indicated for shearing.

The flock is now ready for the pasture, with as much salt as they will eat twice a week, and occasionally flowers of sulphur mixed with their salt; but if there are ticks on the sheep give sulphur with their salt all the time, except in spells of wet weather. If there are any having large horns, put a little pine tar around the roots of the horns, once every three or four weeks, to guard against the attacks of flies. And now let them have enough of grass, clover, weeds, or sprouts, to keep them in good order till the first day of the eighth month (August), when the bucks must be separated from the ewes.

Not later than the ninth month (September), both ends of the flock should be culled; if there are any, from age or other cause, which it may not be profitable to keep longer for breeding, or young ones which are small or dwarfed, from any cause, they should be placed where they can be so used as to answer for mutton, or sold to the shipper or butcher. Long woolled breeds should not be kept for breeding purposes longer than to their fifth or sixth year, generally speaking; the Merinos to the fourteenth or fifteenth year, and the common, or the grade of which I am speaking, generally range between these two extremes. I think few of them are profitable longer than to their seventh year, and a large majority should be culled off at their sixth year.

There should be particular attention paid in culling, to have ewes rear good lambs, for it is not always the best looking ewes that prove to be the best breeders. Some will pay to keep as long as they can rear a lamb, while others may raise such poor or light-shearing lambs that they should not be kept for breeders. Then in the tenth month (October), or early in the eleventh month (November), after all danger from flies is past and before cold weather sets in, dock the lambs by one taking them with the left arm under the flank and the right over the left side of the neck, with the hand under the brisket, holding the buttocks against a piece of timber

or block, with the lamb's hind feet off the ground and the tail laid firmly on the timber; while another, with the thumb and finger, slips the skin of the tail toward the body. While thus held, with a light, sharp hatchet, take the tail off at a blow, leaving the stump, three-fourths of an inch in length, and turn loose, which can all be done in less time than it can be told. About this time the lambs should be separated from the grown sheep, except a few of the older, and tamest of the flock, to be taught to eat grain, which best can be done by feeding a little wheat bran in troughs till they get to eating it tolerably well, then mix a little grain, and, as they learn to relish it, gradually increase the proportion of grain and lessen the bran till they will take the grain, when the bran may be left out and grain continued, as the needs of the flock may require.

In selection of bucks, never choose one that has turns of diarrhea, or which has a desponding, dull or sleepy looking countenance. The kind of breed for the buck should depend entirely on the size or number of the flock; if there are not to be more than sixty in the flock, I should prefer the Cotswold or some one of the large, long-wooled breeds; but if the flock is to reach above sixty in number, the Merino will prove the more profitable, provided the flock-owner has not already the grade or type of sheep that he wishes to breed. And if you purchase a buck, get a thoroughbred, not under nineteen months of age; neither use ewes for breeding under that age, and an eye kept all the time to heavy shearers. In speaking of the kind or breed of sheep to select bucks from, I should here state that of the Shropshire or Oxfordshire Downs I have had no experience, having seen, but never have owned them. But if they are all that is claimed for them, i. e., keeping healthy in flocks of several hundreds, shearing twelve pounds per head, and as good mutton for size and quality as any; if they possess these qualities, I of course should prefer them to any other for bucks for a large or small flock, considering, as I do, that a flock of sheep that will raise lambs, shear twelve pounds or more per head, and keep healthy in large numbers, is what the miners call a bonanza. Feeding in sheds open to the east or south, or, if convenient, to the southeast, with racks for provender and troughs for grain, is the most economical, but they can be fed on grass, sod or dry snow with shocked corn with very little waste. Yet I believe there are greater profits realized by having part of every farm set in blue grass for winter food, and for sheep, the nearer they can be wintered on blue grass or rye, the better. Bucks should be turned in to the ewes 150 days before we wish the lambs to come, their minimum time being 145, and maximum 154 days. From the 20th day of the eleventh month (November) to the 1st day of the twelfth month (December), from my experience, is the best time, in this latitude, to rear the largest per cent. of the lambs, and with much less expense in attending to them, as it will bring them from the middle of the fourth month (April) to the middle of the fifth month (May.) There should be a shelter in the place where the ewes are kept in lambing time, if only a rail pen, covered, and of rainy weather, days or nights, those having very young lambs, or likely to have soon, should be inclosed therein.

Many of our successful farmers have quit castrating lambs and sell them in late summer or early fall, which I believe would be the most profitable plan; but to castrate, slit in the anterior and lower part of the scrotum, never cut the end off, and cut off as little of the membrane inclosing the testicle where it is attached to

the epididymis as possible, to get it free, and with a sudden pull, but not quick jerk, draw out the spermatic cord; cover the wounded part of the scrotum with pine tar or grease and turpentine, to keep off flies, but, if cool, tar may get too stiff. I like best to have the weather warm enough to use the tar, but notice closely for a few days.

I am well aware that some breeders of sheep claim great profits from early lambs, and a paper read before a county association this season states that late lambs would do for the lazy man. The author can with the same propriety state that a reaping machine is the lazy man's implement, and every other labor saving machine, while the industrious farmers take their reap-hooks to save their wheat, and their wives bring up the next through. I can testify that there is more profit in rearing seventy-five lambs without having to spend one hour in attending to them, than there is in having two hands spend half their time for two weeks trying to save thirty, and then lose from one-third to one-half of them. After several years' experience, the manner and time I have here tried to give is proving the most successful. I have tried different breeds of sheep and lambs, earlier and later, but will not occupy time now to give in detail or minutiae the little difficulties which brought me to this time, but I had it all to learn, and expect, if I live, to learn more yet.

The special committee appointed to investigate the treatment of Mr. Calvin F. Darnell at St. Louis, a member of the Indiana Wool Growers' Association, made the following report, which was received and unanimously adopted:

MR. PRESIDENT—Your special committee appointed to investigate the treatment of Mr. Calvin F. Darnell, a member of the Indiana Wool Growers' Association, by the St. Louis Agricultural and Mechanical Association at its Fair in St. Louis, October, 1881, in regard to withholding from him a premium, have thoroughly investigated the matter and beg leave to make the following report:

We find that Mr. Darnell exhibited before said Association one buck, Gray Prince (in class 6, long wool), and five ewes of his get. That the Superintendent of the Sheep Department, Mr. Chas. L. Hunt, ruled Mr. Darnell's sheep out of the exhibition, contrary to the rules of said Association.

That there was no protest against Mr. Darnell's sheep, as the rules of the Association require, but the burden of proof was thrown entirely upon Mr. Darnell, who, under the rules of the Association, would have ten days to procure the proof that the sheep were such as Mr. Darnell represented. The proof of breeding was furnished by Mr. Darnell inside of the time required, and yet when presented, Mr. Darnell was informed that it was too late. And the award on said class of sheep was unjustly given to another exhibitor.

We therefore recommend the adoption of the following resolution:

Resolved, That in the opinion of this Association the sheep exhibited by Calvin F. Darnell, of Indiana, at the Fair of the St. Louis Mechanical and Agricultural Association in October, 1881, were justly entitled to the premium of \$100; that said premium was unjustly awarded to other stock, and that the action of said Association is hereby condemned by this Association as contrary to justice and in violation of their own rules.

The papers in proof of all the facts stated are in the hands of the committee. All of which is respectfully submitted.

CYRUS T. NIXON,
I. N. COTTON,
JOHN L. THOMPSON,
Committee.

The following programme was adopted for the next annual meeting, the time of holding which will be announced hereafter:

1. What is the best mode of handling our rams through coupling season, and the best mode of taking care of ewes after coupling time until lambing? Also, the best mode of caring for ewes and lambs until wethering time?—F. M. Hudson, London, Ont.
2. Diseases of sheep in Indiana, and their successful treatment.—John Tomlinson, Fairland.
3. Best mode of conducting the sessions of the Wool Growers' Association of Indiana to secure a large attendance.—Hon. Cyrus T. Nixon.
4. Breeds of sheep, their origin and composition.—Robert Mitchell, Princeton.
5. Can root crops be made profitable as sheep feed in this latitude?—J. L. Thompson, Arcana.
6. In a course of general or mixed farming, how many sheep can be profitably kept to the acre?—Uriah Privett, Greensburg.
7. Is it profitable to pasture wheat with sheep?—Dr. Jonathan Conkle, Castle-ton.
8. Election of officers.

PROCEEDINGS OF ANNUAL MEETING, FEBRUARY, 1883.

ROOMS OF STATE BOARD OF AGRICULTURE.

The annual meeting of the wool growers of Indiana was held in accordance with the programme, Wednesday, February 1, 1883, President Fielding Beeler in the chair, and J. W. Robe, Secretary.

The reading of the records of the previous meeting was, on motion, dispensed with.

The following new members were admitted:

[A full list of members, with this exception, will be found in Indiana Agricultural Report for 1881, p. 389.]

<i>Name.</i>	<i>Post Office.</i>	<i>County.</i>
R. C. LOSEY	Indianapolis	Marion.
MORRIS HOWLAND	Indianapolis	Marion.
LEWIS SHIVELY	Indianapolis	Marion.
LOUIS SCHENCK	Seymour	Jackson.
NIXON HENLEY	Monrovia	Morgan.
OWEN SPENCER	Needham	Henry.

LIST OF NEW MEMBERS—Continued.

<i>Name.</i>	<i>Post Office.</i>	<i>County.</i>
F. W. PAINTER	Middletown	Henry.
C. MATHEWS	Brookland.	Morgan.
F. M. WATKINS	Collett	Jay.
S. L. RITCHEY	New Paris.	Preble county, Ohio.
W. L. MARSH	Edinburgh.	Johnson.
W. S. JORDEN	Dublin	Wayne.
W. D. PRIVETTE	Greensburg	Decatur.
E. W. SHIELDS	Stilesville	Hendricks.
HON. D. W. VOYLES	Crandalls' Station	Harrison.
ISAAC GOLDEN.	Acton.	Marion.
THOMAS S. JOHNSON	Boggtown.	Shelby.
JOHN E. MCGAUGHEY	Gallaudett.	Marion.
N. H. JONES.	Franklin	Johnson.
HON. W. D. FRAZER	Warsaw	Kosciusko.
HON. JOHN H. STOTSENBURGH.	New Albany.	Floyd.
JACOB NEWBY.	Nora	Marion.
THOMAS HUGHES	Hebron	Marion.
T. J. WILLIAMS	Muncie	Delaware.

The regular reports were read and referred, and the association listened to and discussed the following papers:

1. President's Address.
2. What is the best mode of handling rams through coupling season? and the best mode of taking care of ewes after coupling time, until lambing? Also, the best mode of caring for ewes and lambs until weaning?—F. M. Hudson, London, Ontario.
3. Diseases of sheep in Indiana, and their successful treatment.—J. R. Tomlinson, Fairland.
4. Best mode of conducting the sessions of the Wool Growers' Association of Indiana to secure a large attendance.—Hon. Cyrus T. Nixon, Indianapolis.
5. Breeds of sheep, their origin and composition.—Hon. Robert Mitchell, Princeton.
6. Can root crops be made profitable as sheep feed in this locality?—J. L. Thompson, of Arcana.
7. In a course of general or mixed husbandry, how many sheep can be kept profitably to the acre?—Uriah Privitt, Greensburg.
8. Is it profitable to pasture wheat with sheep?—Dr. Jonathan Conkle, Castleton.

The following officers were elected for the ensuing year:

President—Fielding Beeler, Indianapolis.

Vice President—A. N. Hanna, Indianapolis.

Secretary—J. W. Robe, Greencastle.

Treasurer—S. W. Dungan, Franklin.

PRESIDENT'S ADDRESS.

BY FIELDING BEELER.

Members of the Indiana Wool Growers' Association :

It is with pleasure that I meet and greet you on this occasion, and I hope that our meeting may be both pleasant and profitable to all participating. It is, perhaps, well that you leave for a little while your homes with their pleasant surroundings and associations, that you may the better appreciate them on your return. It is, also, well to leave for a time your farms and flocks, and the cares connected with them, and mingle with friends and brethren engaged in the same occupation and having similar trials and triumphs, failures and success, and thus gather strength from the inspiration of congenial minds, and profit from each other's failures or success.

We have organized as a Wool Growers' Association not with the idea of gaining an advantage over others of any other occupation or pursuit, nor of wool growers who may not see proper to join our association, but with a hope of being, to some extent, mutually benefited, and also of benefiting others and our State at large by calling attention to the opportunities and possibilities of sheep husbandry, which have long been—I may say, in fact, during the entire history of our State—a much neglected branch of agriculture. Within the last few years we have been making very decided advances in the right direction, and I think our association may, without a just charge of egotism, very properly claim the credit of a very large share of that improvement, not alone for the increase in number of sheep, but especially for the very marked improvement in the quality. I will not consume your time by any lengthy reference to the great changes that have been made for the better. There are few of you too young to remember the kind of sheep generally seen a few years ago on our farms, and I need give you no description of them; nor when we remember them, need we wonder that sheep-raising *did not pay*, and the business made so little progress.

You know how all is changed for the better, though there is still great room for improvement, yet great progress is being made. Flocks of the stately Cotswold, Leicester and Oxford, the neat South Down, Shropshire, etc., and of the hardy and heavy-wooled Merino are all to be found, though not so often as we might wish. Yet, if our flocks have been much improved by various crosses with the various improved breeds made, I am sorry to say, without skill or special design except for a change, still, very decided improvement is the result.

I am glad to be able to say to you, as to future prospects for our business, that though it is not all we might wish, yet under all circumstances we could hardly hope it to be better.

Mutton has for the year past borne a better price than ever before in the country, with every prospect for an improved demand rather than a falling off. From the

fact that the quality is better, and that the supply of meat of all kinds is not keeping pace with our increase in population; and, also, from the fact that good mutton is the best and healthiest of meats, and that when our people have once acquired a taste for it they will, if not "cry for it," at least have it when it is to be had.

And, also, from the fact that we are beginning to export mutton on quite an extensive scale, and that the demand is likely to continue. It is already an important factor in our foreign trade and National wealth. I would say here that the statistics of fat stock received at Chicago for 1882 show a falling off from 1881 in the weight of meat of in round numbers of 50,000,000 pounds, notwithstanding an increase of 135,000 sheep received.

Though the price of wool has ruled lower than we had a right to expect, yet I see no reason for discouragement. I think there is little doubt but the agitation of the tariff question has had a depressing influence on the price of wool, causing a feeling of uncertainty as to the future, both with manufacturers and the purchasers of their productions, consequently they have been buying only sufficient to supply their immediate wants.

I will attempt no discussion of the question of tariff, for we have a surfeit of that through the newspapers, speeches from statesmen and politicians, and carefully prepared papers from political economists, and at our last meeting had able papers from two of our members, and discussion of the same from members of our Association.

When we come to consider it not as a political question, but as a question of industrial economy, I have no feeling of doubt on which side the wool growers will be found.

In this connection I present the following brief extract from the address of the Hon. Columbus Delano, before the Ohio Wool Growers' Association at Columbus, the 9th of January last:

<i>Census Year.</i>	<i>No. of Sheep.</i>	<i>Lbs. of Wool.</i>
1850	21,723,220	52,516,959
1860	22,471,275	60,264,913
1870	28,477,051	100,102,387
1880	43,576,899	235,648,834

From 1850 to 1860 the increased number of sheep was 748,055, equivalent to 3½ per cent. From 1860 to 1870 the increase was 6,006,675, amounting to 27 per cent.

As the tariff now in force was not passed until March, 1867, it is reasonable to presume that the greater part of the increase during this decade was caused by the confidence resulting from this law, and this presumption is strengthened by the large increase in the number of sheep during the next ten years (from 1870 to 1880), amounting to 15,998,948, and equivalent to nearly 53 per cent.

The increase in pounds of wool during these periods is still greater in proportion.

From 1850 to 1860, 7,747,954, or 14½ per cent. From 1860 to 1870, 39,837,474, or 66 per cent. From 1870 to 1880, 135,546,447, or 135 per cent.

It is statistical, and is presented to illustrate the beneficial effects of the tariff

of 1867 on the wool-growing interests of the country. It is estimated by those who have given special attention to the subject that we now have near 50,000,000 of sheep, and that the production last year was near 300,000,000.

In estimating the advantages of sheep husbandry, we must not lose sight of the fact that it is the foundation of nearly every other industry, giving employment to 400,000 or 500,000 farmers and flock masters, and making it possible for the establishment of 2,684 woolen mills in the United States in 1880, with a capital of \$158,644,270, employing 160,998 hands, paying them in wages \$47,180,618; while in 1860 these mills gave employment to only 41,000 hands and paid them in wages only \$9,000,000. Notwithstanding all this industrial progress, we yet produce only about three-fourths of all the wool necessary for home consumption, and from one-fourth to one-third of our wool and woolen goods are imported from abroad. The question is often asked why this is the case. An answer may be found in the fact that not until the enactment of the wool tariff of 1867 were our wool growers protected against the ruinous importations of wool and woolen goods from countries where wool was produced on low-priced land, light taxes, low rate of interest on capital, and pauper labor.

On this point I present an extract from the address of Mr. Stevens, read at the same meeting.

As the subject of tariff revision is now before Congress, I recommend that this association take immediate steps to acquaint our United States Senators and members of Congress as to our views and wishes, and I doubt not our opinions will receive the attention and have the effect due them.

The present dog law, which was introduced in the Legislature two years ago by one of our members, then a member of that body, and passed, but only went into operation as a law the 1st of April last, and which, notwithstanding the short time it has had for trial, is generally conceded to have had a good effect. Bills have been introduced in the present Legislature to repeal the law, and earnest efforts are being made by some members to that end. While I do not think the law perfect, yet I believe its repeal would inflict great injury on the wool-growing interest. The present law may need amendment; I think it does, and that we should be willing to agree to such modification as may make it more generally acceptable, if possible. I would suggest the appointment of a committee of our association to confer with the Agricultural Committees of the two Houses, and such other members as they may think best.

It is with feelings of sadness that I report to you the death of two of our members since our meeting, in June last.

Henry C. Meredith, a member of the State Legislature, and President of the State Board of Agriculture, died at his home, at Cambridge City, on the fifth day of July last, after a short illness. He was an active member, and former Vice President of our association, and gave his best efforts for our success. He had done much to improve the stock of sheep in our State. Besides having for years been a breeder, he had made several direct importations of Cotswold and South Downs, from the choicest flocks of England. He was also a breeder on an extensive scale of other stock, especially of Short Horn cattle and Berkshire hogs. We shall miss him in the meetings of our association. His death, in the vigor of manhood,

at the meridian of life, is a great loss to the improved live stock interests of the State.

Martin Pearson died at his home, near Greenwood, Johnson county, on the — day of August last, after a lingering illness, borne with the fortitude and resignation of a hero and Christian. He was one of the organizers of our association, and I think had never missed a meeting, when able to attend. He was a frequent participator in our discussions, and was always listened to with pleasure and profit. I suggest that suitable action be taken by this body in memory of our departed brothers.

On motion of Mr. J. W. Robe, a committee, consisting of Messrs. Robe, Cotton, Nixon, Nelson and Dungan, to which Dr. Stevenson and Mr. Richey were added, was appointed to prepare resolutions regarding the tariff on wool.

The Secretary read the following report of the Committee on Tariff:

WHEREAS, The Wool Growers of Indiana, in convention assembled, having examined the report of the late Tariff Commission on wool, deem it proper to express their opinion in regard to the proposed reduction on imported wools; and,

WHEREAS, The existing tariff on wool has been signally beneficial in developing sheep husbandry in the United States, and has increased the production of wool from 60,000,000 pounds annually to about 300,000,000 pounds annually, with a like increase in the production of mutton, while in England, France and Germany these interests have constantly decreased in amount and value; therefore,

Resolved, That the recommendation of the said Tariff Commission, in regard to the proposed reduction on imported wools, if adopted by Congress, will prove ruinous to sheep husbandry in the United States, and we respectfully ask our Senators and Representatives in Congress to vote against and use all honorable means to prevent any reduction in the existing tariff on imported wool.

J. W. ROBE,
CYRUS T. NIXON,
ROBERT MITCHELL,
S. W. DUNGAN,
I. N. COTTON,
Committee.

Mr. S. S. Richie, of Ohio. I am interested in the welfare of the country, and especially the wool growing interest. I understand that diamonds are to be taxed only one-ninth as much as blankets. The tariff on blankets is so very high, I doubt very much whether you can buy a common English blanket in Indianapolis. They can not afford to pay sixty or seventy per cent. tariff, and then sell them here at reasonable figures. I want the tariff to be as much on wool as on blankets. We hear from every political stump speaker that we must have protection for our home manufactures against the pauper laborers of England. Agricultural labor is much lower than factory labor. I am not able to see why the wool growers and farmers should not have as much protection as manufacturers. There are about 6,000 manufacturing establishments of woolen goods in this country. Why should the entire community be taxed to pay one-third more on goods for the benefit of those few manufacturers? I believe it is so, and has been so for years. If there is any way to reach this, I would like it.

Dr. A. C. Stevenson. I was on the committee, but did not see the report until to-day. I will agree with the report, that it has increased the amount of wool and number of sheep in the country. The tariff has been a benefit. Notwithstanding the good effects of the present tariff, there is probably an outside influence that makes it necessary for us to look carefully at the matter. There has been two parties in this country. As to protection, there has been opposition in this country. Our first measure was a protective measure, and kept up ever since, not only on our wool, but other articles. The difference between the two parties, as to protection, amounted to this: Each party is in favor of a tariff that will afford a revenue to protect manufactures and agriculture as may need protection. In 1867 we had a commission appointed to regulate the tariff on wool; that commission met and examined that subject thoroughly. There was then, as now, in this report, a difficulty between the manufacturers and producers of wool; each one wanted protection. The manufacturers and producers were called together and consulted on the subject, and finally agreed on the present tariff on those two contending questions, and the country has been prosperous until this day. It will be observed in the system adopted on that occasion, that the wool growers had a duty placed upon wool, and the manufacturers in obtaining a duty, by the consent of the wool growers, upon manufactured goods equal to the duty upon wool, which was called a retributive duty, which was really no protection to the manufacturer of wool, but only placed them on the same footing as the English manufacturer was in our market. They were taxed just the amount before. He agreed upon this: that there should be a duty on manufactured goods equal to that on wool. The duty on woollen goods is a compound duty, composed of a duty upon goods, it has then added to that an *ad valorem* duty which is protection to the manufacturer. Well, sir, the Tariff Commission appointed on the 26th of last May provided for a Tariff Commission again, that Commission has examined that matter carefully, and made about twenty-five or thirty per cent. reduction on manufactured goods. If you will examine the report you will find that the raisers of wool are not hurt. I beg, sir, to show you by adopting the report of the Committee. In 1860 our large protective tariff was passed, since then it has fluctuated, sometimes up a little and then down, until the present time. It has been ascertained that some articles in our manufacture needed alteration; some were protected too much, some not enough. The duty on manufactured is not disadvantageous to the producer of wool. How does it hurt the wool grower? It enables the manufacturer to give a better price. Now, sir, this cry has come up until there seems to be a necessity in making a change. On the coarse wools of South America and Mexico, which is full of burrs and not fit for anything else but carpets, they have put a low duty, because it does not come into competition with our wool.

Question. Why not leave the tariff off of graded wool altogether?

Dr. Stevenson. Our tariff is for two purposes—for protection and revenue. Two and a half cents a pound is the tariff now on wool raised in South America. The low price on this third article enabled the Commission to place on these wools sufficient protection to our wool. It is claimed that the duty is very high on those articles worn by common people. It is a mistake. Thirty cents a pound is retributive duty set off for our wool; the *ad valorem* duty is the duty that protects them.

Mr. S. S. Richie. Common blankets are prohibitory. The duty is so high that the English can not send them, and the duty on wool so low it gives her mills millions of pounds annually. I want it equalized; I want as much on a dollars' worth of blankets as on a dollars' worth of wool.

Dr. Stevenson. I think we can not misunderstand this matter. This tariff bill has been prepared with special a eye to our wants. It is sufficient for the protection of wool. I am satisfied that that bill was manufactured in our interest; if it were not you would have a high duty on wool. It don't affect us. There is no mistake about them trying to protect us in this matter.

Mr. I. N. Cotton. Does this report cut down the tariff prior to that?

Dr. Stevenson. Yes, sir. On the whole, I think we should be willing to act liberal on this subject, if the duties on other things are to be reduced. We don't want our government to hoard up a large amount of money, but reduce our tariff to a standard at which the government can live and prosper. This question is of vital importance to the manufacturers of the country. Some people say there is no duty on corn and wheat. There is a duty on everything we raise. Canada, or any foreign country, can not sell here without paying duty. I recollect when money was scarce here. Just before the war we were borrowing money at twelve per cent., and now we are loaning money at three per cent.; this all grew up under this tariff question. I believe we can raise any amount of wool in this country we want. We are paying more money in England for wool than any other government. Our flocks are increasing wonderfully, and if we hold on with the tariff that is offered us we will soon supply ourselves with wool. There is no stock in the country so generally diffused as the sheep. There is hardly a county in Indiana but what has sheep, and I see nothing to hinder us in the work.

Question. What is the best quality of sheep?

Dr. Stevenson. There is no one quality best for every part of the State. Location makes a difference.

Mr. S. S. Richie. I bought in Richmond a quantity of flannel; it took five yards to weigh a pound. Twenty-two cents for wool and forty cents for flannel, you don't get one-quarter of it. The price is too high for poor people; they pay from one-third to one-half more than they should. The great body of the wool is sold in the dirt. The duty on wool is high enough as to wool growers, but the manufacturer has too great an advantage over us. I investigated this matter two years ago. I can buy blankets in Liverpool for four to five dollars a pair, for which we have to pay six or seven dollars here. I do not know which is best, a high or low tariff, but we should have it equalized. I contend for liberality and equality.

On motion the report was laid upon the table until the next meeting of the Association.

On motion of Mr. Cyrus T. Nixon, a committee of five, consisting of Messrs. Howland, Mitchell, Cotton, McDaniels, Thompson and Nixon, was appointed to prepare resolutions asking the Legislature to add a penalty clause to our present dog law.

Resolved by the Wool Growers' Association, That the General Assembly of the State of Indiana be requested to amend an act to protect sheep husbandry and regulate matters connected therewith, approved April 13, 1881, so as to make it a penal offense

for any person to fail to report the number and sex of dogs owned or harbored by them to the Township Trustee of their respective township, on or before the first day of April of each year, to be registered by said Trustee; or to fail to purchase the requisite tag and place the same on a collar on all dogs owned or harbored by them; all failures of this kind shall be punished by a fine of not less than \$5.00, nor more than \$25, upon conviction in any court of the county in which said failure does occur. Also requiring the Trustees of the townships of each county of the State, on the first day of October of each year, to pay all money belonging to the dog fund, in excess of fifty dollars, that is in their hands, into the county treasury of their county, to be held by said Treasurer for the payment of damages sustained by the owners of sheep killed or maimed by dogs that has not been paid by the Trustees of the different townships of said counties for the want of funds, and requiring all moneys that may remain in the hands of the Treasurer of each county on the first day of March of each year, that was paid to him by the Trustees as a dog fund, to be paid by said Treasurer to the county school fund.

C. A. HOWLAND,
R. MITCHELL,
I. N. COTTON,
J. L. THOMPSON,
Committee.

DISCUSSION.

Mr. Magee. It is my opinion that since the new dog law has come into force there have been more sheep killed than before in my neighborhood. It is those unlicensed curs that do the damage. Many failed to have their dogs registered, and when the constable came they would run them away from home to prevent him killing them. By doing this they became half starved, and it made them worse. Already this year the same thing is repeated, and extensive ravages are being made in my neighborhood. I think the present dog law is not effective, and something more efficient than we have should be substituted.

Mr. Cotton. While we have a decrease of all stock in this country, sheep have decreased less than any other kind. I attribute this to the dog law.

Mr. Thomas. A neighbor of mine had a small flock of sheep. They were in a different township from where he lived. His sheep were killed by a little dog less than six months old. The question is, who shall pay for those sheep?

Mr. Cotton. The sheep belonged in the township where they were taxed.

Mr. Nelson. We have had less sheep killed of late years. There is but one township which reported less than usual, and one a little more. There is no question but what we have to pay where the sheep are, if killed. Our folks are favorable to the present law.

Mr. Jones. I want to say in behalf of the present law that my experience is it is a good one, so far as it goes. Our trustees in Johnson county have been faithful, much more so than the farmers have been in reporting the dogs. Let us all have courage enough to report all dogs that are not licensed. A vast number of inferior curs have been killed under this law, and fewer sheep in my township, which is encouraging.

Dr. Conkle. We like the present dog law. We want it continued.

Mr. Henley. I have the honor of being trustee of our township. This dog business is a very unpleasant one. I have had some experience in the matter of sheep being killed by dogs of another township, and I wrote a note to the Attorney General on the subject, who said that sheep must be paid for in the township where they were killed.

Mr. Wiley. There has not been a dog killed in our township. The constable refuses to serve. The trustee appoints another and yet the dogs are not killed. I don't know whose fault it is, whether it is in the law or in the trustee.

Mr. Cotton. It is hard to get a law of this kind through the Legislature, they seem to be afraid to work on it.

Dr. Stevenson. I am in favor of this resolution. I believe that the spirit is manifest on this subject, that there is no more important subject than the raising of sheep. Dogs should never be pastured with sheep, they don't do well together. Mr. President, this thing of tagging dogs is a good thing, but it does not accomplish all. Those tagged dogs will kill sheep just as well as others, and will kill them just as long as they are tagged. We say the township pays us for the sheep, but recollect that it is a loss to the country just the same as if it were not paid. The sheep are gone out of the country. I went into the sheep business many years ago, and have had as high as seventy killed in a single night by those dirty curs. I studied from year to year how to get rid of those worthless dogs; I do not think a dog is worth five cents to the owner. They are worthless for driving stock out of our corn fields, and other places. They are a curse to the country. They are worse than nothing when we come to hunting quails and prairie chickens. I used to say that I had learned something about dogs as to their ways and habits. They generally leave home about ten o'clock at night, or soon after the family retires to bed, and they are home early in the morning before you arise. If you catch them on a sheep the owner will say they were at home all night, and not with the sheep. I take the higher power, license won't save them. Dogs go into pastures at certain places; I learned their path or place of crossing. I got a little strychnine and put a little here and there in their line of travel, and I swept them out of the country. It is the only way to do it. It is the only way you can raise sheep; you have got to kill the dogs. If my neighbor's dogs get into my pasture I tell them that I can not pasture their dogs. Get a little strychnine and put it on a little piece of meat, and put on it another little piece, tying the two together with a thread, making the morsel about as large a dog can swallow, and lay it down in his path, and you have got a dog, sure. If a man has a dog let him be put up at night, keep him in the house to keep out thieves, and not let him go out thieving himself. Several years ago I had a boy hired who was fond of fun. He made him a spring pole, one end was fastened to the ground and the other bent down to a circle of stakes driven in the ground, and a cord attached to the end of the pole was placed around on these stakes in a noose. The pole was bent down and the spring fastened in a hook. The dog would thrust his head in for the bait, and whenever he pulled this out it pulled him up. In one night he killed nine dogs in this way. This is the only way I could raise sheep.

On motion of Mr. Robe, a committee, consisting of Messrs. Robe, Dungan and Mitchell, was appointed to draft resolutions expressive of the sense of the associa-

tion relative to the death of two of its members—Hon. H. C. Meredith, of Cambridge City, and Martin M. Pearson, of Greenwood. The committee presented the following:

WHEREAS, Since our last June meeting we have been called to mourn the loss of two of our members, the Hon. H. C. Meredith and Martin M. Pearson, having been removed by death.

H. C. Meredith died at his home at Cambridge City, on the fifth day of July, 1882. In the death of Capt. Meredith the State has lost an esteemed citizen, the live stock interest a man whose whole life seemed devoted to how he could best improve and bring to perfection the various domestic animals of the farm, and especially the wool growing interest. He was also a man of firm opinions and noble manhood.

Mr. Martin Pearson died in August last, at his home, near Greenwood, Indiana. Bro. Pearson was a charter member of the Indiana Wool Growers' Association, and during his long connection therewith was constant in attendance upon its meetings, and one of the most honored and influential of its members. He was an enthusiastic breeder of Cotswolds, and took an absorbing interest in all that pertained to the improvement and perfection of domestic animals. He was a Christian man, and a kind and affectionate husband and father. His loss will be felt by his friends, and all with whom he came in contact.

Resolved, That we keenly feel the loss of Bros. Meredith and Pearson, and in their death recognize the hand of Divine Providence; and we deeply sympathize with their bereaved widows and families in their afflictions.

Resolved, That these resolutions be spread upon the records of the meeting, and also, that copies be presented to the city papers for publication.

Mr. Tomlinson read the following essay on the "Disease of Sheep and the Treatment in Indiana":

DISEASES OF SHEEP OF INDIANA AND TREATMENT.

BY J. R. TOMLINSON, FAIRLAND.

The sheep is a ruminating animal, and, in common with all cud chewers, has a very complex digestive system; and, while its four stomachs do not hasten, but rather prolong the work of digestion, yet that work is more perfectly done in the sheep than in any of our domestic animals. But on account of the complexity of its digestive organs, it is liable to diseases affecting this system. The brain and nervous system of the sheep are smaller, in proportion to its size, than those of any other animal. On this account, they are not capable of great or long continued muscular exertion; the circulatory system, also, is small, and comparatively feeble.

On account of these peculiarities, sheep are not very subject to active inflammatory diseases; but the power to resist disease, or recover from it when attacked, is diminished from these same causes. Indeed, a serious attack of disease in sheep too often proves fatal, and especially if it be a disease that makes a drain on the fluids, or in any way depletes the power of the system. This fact must be remembered in the treatment of their diseases. Bleeding or active purging should not be resorted to except in active inflammation, and then cautiously. In the treatment of diseased sheep, all medicine should be given in a liquid form through a drenching horn, or properly shaped funnel. If given concealed in food, it passes into the first stomach or paunch, where it is liable to be lost.

The chief diseases of the breathing organs are catarrh, or cold; and pneumonia, or inflammation of the lungs. Catarrh is known by profuse running at the nose, often accompanied by a cough. It is a disease of the winter and spring months, and is generally the result of too close and warm stabling. Sheep need dry bedding and protection from rain, but their health demands a free exposure to the open air. Catarrh is a troublesome, but not a dangerous disease, unless the inflammation extends to the lungs, when it becomes pneumonia, which is generally fatal. This transition is marked by a quick and labored breathing, a frequent hacking cough and a grinding of the teeth together. The discharge from the nostrils becomes yellow; a high fever, loss of appetite and thirst are present. Bleeding and purging with epsom salts is the treatment recommended, but usually death terminates the case in a day or two, under any treatment. This disease is often the result of exposure to cold rains after shearing.

The special diseases of the digestive system are diarrhea and costiveness. Diarrhea, or scours, as it is commonly called, occurs generally in the spring when the diet is changed from dry winter food to the tender spring grass. This disease is not generally accompanied with loss of appetite, nor with fever, and, therefore, is seldom fatal. The sheep affected with diarrhea should be separated from the flock and kept in a lot with but little grass on it, and fed with dry feed till the condition of the bowels is corrected. If the disease is stubborn, give an ounce or two of castor oil, and follow it by two tablespoonfuls of strong oak bark tea with half a teaspoonful of prepared chalk or baking soda in it, morning and evening. Costiveness frequently occurs when sheep are changed from green pasture to dry food. The animal frequently stretches itself and makes a groaning noise when voiding dung. A little linseed meal mixed with the food will generally relieve this difficulty. A mixture of sulphur and salt placed where sheep can get it is a good precaution against disturbances of the bowels in this direction.

Anemia, or poverty of the blood, sometimes affects sheep in the spring, when they are first turned on fresh pasture, especially if the season be wet and the grass tender and watery. Sheep in this condition abandon the flock, eat nothing, lie around with no apparent disease and die in two or three days. The secretions are generally suspended and the bile tinges the flesh and fat with a yellow color, and the blood loses its power to form clots. We know of no cure after the disease has occurred, but the flock should be transferred to other and shorter pastures, and a feed of oats and hay given every morning.

Apoplexy, or blind staggers, is a disease of the brain and generally occurs in

high grain-fed animals, though it is said sometimes to occur from suddenly cutting down the feed. The animal becomes blind, staggers in walking and generally dies within forty-eight hours of the attack. Bleeding and purgatives are the only remedies that have been proposed, and they have seldom been successful. Fortunately, it is a rare disease.

In the early years of the settlement of Indiana, the sheep died in great numbers from an animal of the leech family, known by the common name of fluke, imbedding itself in the liver and multiplying till that organ was literally destroyed. The eggs, or larvæ, of these parasites are taken in with impure pond water when the sheep drink. In healthy sheep, the covering of the eye-ball is a bright red, but when affected in flukes, the eye becomes pale, and finally a dirty yellow. The sheep is rapidly reduced in flesh and, in a few weeks, dies apparently from emaciation. A free use of sulphur is the only remedy proposed, and it only succeeds in the early stages of the disease. Since we have drained our swamps and give our sheep good, wholesome water to drink the fluke is rapidly disappearing.

The gad fly is a troublesome pest of sheep, and sometimes produces fatal results. In the summer months, especially if they be dry, the fly disturbs the sheep in the pasture by its persistent attempts to deposit its eggs in their nostrils. The sheep often become frantic, and race violently over the pasture or huddle together, holding their noses close to the ground. The grub, when hatched, crawls up into the sinuses, where it lives on the mucus secreted from the lining membrane, which it often irritates to acute inflammation. Tobacco smoke blown into the nostrils from the stem of a pipe will generally destroy the grub. Smearing the nose of the sheep once a week with tar, is a good protection from the gad fly. The sheep tick is sometimes very troublesome, particularly on lambs. A free use of oil of any kind will obstruct the breathing pores of the tick and destroy it. The usual treatment is to dip the sheep or lamb in a bath made of twenty gallons of water, in which four pounds of tobacco have been soaked, at nearly the boiling point, for an hour. Ticks can be destroyed by simply keeping the sheep in water five minutes with only the head above water.

Foot rot, in damp, muddy situations, proves a very troublesome disease. In dry or well drained locations, it is seldom seen. As soon as lameness is discovered, the hoof should be pared down, and the foot well smeared with an ointment made of: Finely powdered blue vitriol, four ounces; carbolic acid, one-quarter ounce; pine tar, four ounces; linseed oil, one gill. This will prove effectual if used in the early stages. If sheep are kept on dry ground, they are not liable to be troubled with this disease.

DISCUSSION.

S. S. Richie. I have been interested and well paid in listening to the reading of this paper.

S. W. Dungan. I have had some experience in raising sheep for several years, and had a few to die. Last fall my sheep suffered more than they had for sixteen years with scours, though my lambs suffered most. I attribute it to the rank growth of grass and feeding too much sulphur. Some recommend feeding sulphur for ticks. Last spring a year ago I dipped all my lambs and had no trouble; this

year I did not, and I noticed my lambs were lousy. I raise Cotswolds principally

Question. Was this blue grass pasture?

S. W. Dungan. It was blue grass and some meadow. I could have stopped the scours sooner, but I let it run on too long and lost some of them. My remedy for the scours is to take a bucket of water and put a couple of handfuls of flour in it, and let them drink of this water; at the same time put your sheep in the stable and feed with dry timothy hay.

Mr. Howland. I am pleased with the gentleman's remarks, so far as feeding sulphur; it is fed too much. Let us beware of a man who has a hobby. We too often go to extremes in the case of sheep, as well as anything else. We should use our own judgment in these things. Too much sulphur is not good. I have had a little experience, and quit before I suffered much. I have learned to be cautious about those remedies. There is one disease that I wish the gentlemen to speak of; it is what is generally called the "liver rot." I would like to know a remedy for this.

S. W. Dungan. I think it is the same as fluke.

S. S. Richie. I have had some experience in using sulphur; a moderate use of it is good, and where they are not very lousy they will be freed from them by a moderate use of sulphur. If you will keep your sheep fat and in a thriving condition they will seldom, if ever, have lice on them. I have not had ticks on my sheep for three years; before that I was troubled a great deal with lice on the Cotswold sheep. I have given up the Cotswold and taken up the South Down, and have had no trouble since.

Dr. Conkle. I would like to have this question of "liver rot" explained.

Mr. Thomas. I have had almost every disease among my sheep except the fluke

S. R. Quick. Mr. Dungan said I was an advocate of sulphur; I have advocated it ever since the organization of this association, and have had no serious results, but I would use it cautiously. I have never had occasion to clip my sheep, yet I raise Cotswold. I have had some little trouble with scours among my lambs at weaning time; my remedy is to put my lambs where they can not get any water except what I give them, and make that in the form of lye by putting a few live coals in it. A friend of mine had a fine sheep which had the scours; he applied the remedy of which I speak and it got well. I am satisfied this was the cause of its recovery.

Mr. Privett. In considering all the diseases of the sheep, there are none that I fear as much as the scours in lambs. We notice in the papers that it is spoken of as being worse in the spring, but I fear it more in the fall. It is not so dangerous to put them on green feed in the spring as to change from green feed to dry in the fall. I have been feeding oil meal; it is the best thing I have done to cure the scours. It digests the food better, and has a more natural appearance. In the feeding of sulphur, if you place it where the sheep can have access to it as their systems require, it is, perhaps, not injurious. Ashes mixed with oats, given them in the fall, is a very good preventative against scours.

B. F. Ging. For the grub in the nostril, Brother McDaniels takes and bores inch holes in a log and puts pine tar and salt in those holes, where the sheep can

have access to it. By this means it keeps its nose tarred, and I have no trouble with the gad fly.

S. W. Dungan. Every flock master should keep tar by the barrel. This may be a more effectual way of getting the nose besmeared than putting it on the ground. I keep it by the barrel and put it on the ground, sprinkling a little salt over it. Bye and bye the salt will be gone, and the sheep will continue to nibble the tar until it is gone. It is good for the system. I have tried boring holes, but this is a big job. I found this other way was just as effective and will remain there until it is taken up by the sheep. I would recommend every sheep raiser to keep a barrel of tar. I have found that strong salt water used as an injection is effectual in exterminating this pest; it causes them to expel those from the nose by the use of it.

S. S. Richie. I have learned by experience that what we call an old pasture is very much better for sheep than a new-made field prepared for mowing. Timothy grows on our best land, it grows luxuriantly, and sheep will get the scours if you leave them on it. If you take them off they do better, and are relieved of this scour. I have used a mixture of sulphur and salt, putting it out in the usual way. I have great faith in keeping sheep in good order, and I apprehend we will not be troubled with disease. Prevention is better than any remedy. Have had no experience with the gad fly.

President Beeler. I understand the fluke is confined to Europe and other eastern countries.

Mr. Thomas. We have it in our own State, I think.

Mr. Howland. I have had some experience in raising sheep and a little experience with the foot rot, but not in Indiana. My father had a flock, many years ago, and the manner in which he doctored them for the foot rot made an impression on my mind which I will carry. We had 150, and I handled them twice a week, which taxed me considerable. We prepared some quick lime in a suitable place and drove them through it, slowly, continuing this treatment until they were cured. I think, with my friend Richie, that blue grass is freer from the scours than anything else, and old meadows are better than new. For ticks, the old tobacco dip is the surest remedy of any. A sheep that is well fed, and is fat and healthy, will discard vermin, while the lean ones will be infested. If we would dip our lambs every spring for three or four years, we might then pass three or four years without dipping without any trouble from lice. After shearing, the ticks don't go into the wool, but pass into the long wool of the lamb. I would recommend dipping sheep about two weeks after shearing. This gad fly is the greatest terror to the sheep; it keeps them on the drive, as they are a very sensitive thing—if anything stirs, down goes his head until the noise ceases. Tar is the only safe remedy. I am very much opposed to the use of sulphur; the less we have to do with it the better. It is a dangerous medicine, and should not be given to sheep. As to scours, give them all the water they want; it won't hurt them if it is not in too large quantities. If they can have access to it all the time, they won't drink so much as to cause injury.

Mr. Privett. I think the scours is caused by eating green grass.

Question. What is the best manner of handling rams through coupling time, and the best mode of taking care of ewes?

Mr. F. W. Hodson being absent, the following remarks on

WHAT IS THE BEST MODE OF HANDLING RAMS THROUGH COUPLING SEASON, AND THE BEST MODE OF CARING FOR EWES AND LAMBS UNTIL WEANING?

BY S. W. DUNGAN, OF FRANKLIN COUNTY.

It is a great mistake to turn our rams out with our ewes, as is practiced by almost all sheep breeders. We are too careless in this matter. Ewes should never be served more than once or twice while in heat. You see we are working our rams to a great disadvantage, when we allow them to go to our ewes five or six or a dozen times, when once is sufficient. It is best to keep our rams separate from the rest of the flock, and bring our ewes in as they are in heat. If you will notice the habits of a ram, he will go but once. If there are any others in heat in the flock, they will go around to almost every one in a flock of fifty. In the fall, when the nights are cool, it will not injure the ram materially to go once or twice to those. Rams should be well fed, during the breeding season, on such feed as oats, corn and bran, mixed. Every flockmaster should have his book and pencil, and note the time of the breeding of each ewe. We too often neglect this. Put a tab on them of the exact time of breeding, and from 147 to 153 days you may expect a lamb. If you breed early, you must take the best possible care of the ewes in the season. In regard to the time intervening to lambing, I would not recommend feeding too strong feed. There is nothing so good as blue grass. Don't give them anything else, if you have this, until about two or three weeks before lambing, when I would give a little feed, such as oats and wheat bran, mixed. Bran is the *best* we can give to sheep. If you give corn, don't give but very little. Bran is the best feed we can give before lambing, as it produces more milk than anything else. Every good flockmaster should be with his ewes during the time of lambing. By this tab you can tell within forty-eight hours of the time when the ewe will lamb. They should be kept in a nice, warm place. Last week, when my neighbors were losing lambs, I had some come at the same time, but my ewes were in warm quarters, and I lost none. Last Friday morning was very cold. One of my ewes was in labor. I got some old rags and rubbed those lambs until they were dry. If I had not been with this ewe, and given attention, both of those lambs would have died. We must give our most vigilant attention in this matter. Weaning time is the most critical time in the life of a sheep. Lambs should be taught to eat early. If you are prepared for it, you can learn them to eat in from two to three weeks old. The right way to teach them to eat is to fix a place so the lambs can go in and the old sheep can not. They will soon learn to go in and eat. It is surprising how soon they will learn to eat, and thrive from it. You must keep up this feeding of corn and bran, and your lambs will grow wonderfully. If you have taught them to eat, already you have accomplished one important thing in taking them through this critical period. If we postpone this until late in the season, we run a risk of losing a good many of our sheep, because, when our grass is exhausted, we are compelled to put our sheep on dry feed, and they will lose considerable flesh; but if you have taught them to eat, you need not fear very much when you come to weaning your lambs; but if not, there is everything to fear.

DISCUSSION.

Question. Would you let them run on rye up to the time of lambing?

Mr. Dungan. I would not.

Question. What do you feed your lambs first?

Mr. Dungan. I feed them corn, bran and oats.

Question. How much corn would you feed them?

Mr. Dungan. After they have learned to eat, a sheep will eat an ear of corn and not hurt it; at first I would not give more than one-half an ear.

Question. Why not give them whole oats?

Mr. Dungan. I don't like it, but I have fed it sometimes without any serious results; some think it will injure the stomach, especially of a lamb.

Question. Do you ever feed corn and cob crushed together to your lambs?

Mr. Dungan. I never have tried it.

Mr. Howland. I handle sometimes from 100 to 500 ewes. I divide them up into flocks of twenty-five or thirty, not more. I do not think coupling should be done before the 15th of November; this brings the lambs when the ewes can get something on which to make milk, and you don't have to work with them to get them to live. I think you will save twenty-five per cent. more lambs by so doing. I aim to wean at a certain age, between the 1st and last of August. I put my lambs in small flocks, putting the strong ones together on good pasture. They all seem to thrive and do well. I never lost half a dozen lambs in my life. I sell most of my lambs to the butcher; for the last few years I have sold my lambs in February or March, which is more profitable. When I wean, I throw one or two of the mothers of the lambs with each flock; they are gentle and will come to you when called. By this method you have got the entire flock tame, and taught to eat by their mothers being with them. A hearty mother will drop a well-fed lamb. Don't skimp anything, it is the feed that brings the dollars. Don't be afraid to feed corn to the sheep; it is the salvation of the whole country; it is the salvation of your stock, and don't be afraid to do it. Every sheep you have got is a good grist-mill, and is susceptible of doing better work than any mill in the country. I shell my corn and give a pint to the sheep; it won't hurt them. You must grade your sheep before giving them corn. Sheep that are not used to it will be liable to get foundered and have the scours.

Question. What will a ten months old lamb weigh?

Mr. Howland. It depends on the amount of corn we feed. I never run in what we call thoroughbreds, but promiscuous sheep. In picking out my flock I select as to hardiness, and get them of uniform size. The Spanish Merino is the finest ideal of any sheep I have ever seen in this country. I have had broader chest and broader sheep in the Cotswold, South Down and Shropshire, but the greatest results were from the Spanish Merino.

S. S. Richie, of Ohio. My first experience was with the Merino. A man brought 2,000 from Pennsylvania and distributed them through Wayne county, representing that they would shear from seven to twelve pounds of wool. I took 120 of them on trial, giving him five pounds of wool annually as his portion in the transaction. From those sheep I never sheared more than six pounds of wool, and generally

less than five. In a year they became unhealthy and took the scours. They got sickly and had almost every kind of disease except the fluke. I kept them five years, and gave him all the wool they sheared. At the end of the five years I bought twenty sheep to make up his number, and when we closed up the trade I gave him a check for \$65 to make up a deficiency of his five pounds of wool. I bred those sheep every year, and still got behind. This is my experience with Spanish Merino.

Question. What was the treatment?

Mr. Richie. They run on blue grass. After my experience with these I tried the Cotswold, for which I paid a high price, but never could get them to thrive as well as could have been desired. They became unhealthy, and I finally disposed of them. I went down to Cincinnati and purchased a fine lot of black faced sheep, which did well. I have at present the Shropshire.

Question. What per cent. of lambs would you get from the black faced ewes?

S. S. Richie. I would usually get fifty lambs from forty ewes.

Mr. Cyrus T. Nixon. Notwithstanding what Mr. Richie has said, the American Merino, with the same care and feed the other sheep have, will shear more wool than any other in the United States. This is my experience, and I have been dealing in them for the last twenty years. In 1879 I bought 750 head and sent them to Kansas. They were sheared the 1st of June, and averaged nine and a half pounds. A friend of mine bought, in Wisconsin, 1,000 head and took them to Kansas, which sheared eight and a half pounds the 1st of June. Eight pounds is the least they talk of with the Merino. A gentleman in Kansas has been breeding them for the last twelve years, for heavy wool. Two years ago he had a herd of 500 head, and they averaged seventeen and one-third pounds to the head. I am in favor of fine wool. I think Mr. Dungan has about the best grade of long wool sheep. Here, in Indiana, we need all kinds of sheep.

Question. Has any one had trouble in bucks miscoupling?

T. W. W. Sunman. I have had some experience in this. Where there is difficulty in serving, it may be somewhat obviated by digging a little hole in the ground, some eight or ten inches deep, in which the front feet of the ewe is placed. In this position the buck don't have any trouble in serving. I have had trouble only with fat ewes.

S. W. Dungan. This breeding has been reduced to a science in England. It is called "hand-riding." We have not made it a science here, as the English have. There they have their bucks trained, and use them in the same way we do stallions. This is an important subject, and every man, if he raises sheep, should understand this. It would have been invaluable to me had I known it earlier. I have practiced it some, and been quite successful. I have had rams to enter ewes in this way when the fat was in the way. If you find them very hard to serve, take away the obstructions.

Mr. Nixon. I am a short wool man. I have never yet had a Merino buck that needed any assistance at "hand-riding."

Member. I dock my ewes short, and seldom have much if any, trouble in this direction.

Convention adjourned till 7 P. M.

EVENING SESSION.

Convention met at 7 P. M., President Beeler in the chair.

Robert Mitchell read the following essay on "The Origin and Breeds of Sheep:"

BREEDS OF SHEEP, THEIR ORIGIN AND COMPOSITION.

BY HON. ROBERT MITCHELL, OF PRINCETON, IND.

Mr. President and Gentlemen of the Indiana Wool-Growers' Association:

On presenting this paper to you upon the breeds of sheep and their origin, I of course have to draw from many authors on sheep husbandry. In the earliest records of the world, it is apparent that the value of the sheep was understood, and that the care of it was among the first of human labors. The offerings of gratitude made by the first human family to the Author of their being, consisted of the first fruit of the ground and the firstlings of the flock, and we are specifically told that the former of the brothers was a tiller of the ground and the latter a keeper of sheep. Blacklock, a distinguished writer, appropriately observes that no animal varies more than the sheep, and none adapts itself so speedily to climate. It would almost appear that nature, convinced of its great utility, had bestowed upon it a constitution so pliant as to enable it to accommodate itself to any point in a wide scale of temperature. For though its natural situation as a wool-bearing animal, like that of man, appears to be the wine countries, yet, with him, it has spread to every part of the globe, being impressed at every change with some peculiarity, alterable only by a change of situation and varying, we might affirm, with the weather. Changes occasioned by climates are always limited to the fleece, horns and disposal of the fat, and never extend to those parts on the permanence of which the animal depends for its station in the scale of being, as the teeth, the feet and the digestive organs. Under such circumstances, says Canfield, "It can not be expected that we can trace the origin of the different breeds of sheep, and as to the qualities and management of any of the ancient breeds, we only know what is furnished by the Bible and by Greek and Roman writers; and so meagre are the accounts which they furnish of the different breeds, that anything like a regular history of the sheep is entirely out of the question."

THE DOMESTICATION OF SHEEP.

As the sheep has been widely disseminated throughout Europe, Asia, Africa and America, and as its young are easily tamed, and its milk, flesh and pelts were extremely valuable to man in all ages, we may well suppose that it was one of the first quadrupeds which was domesticated, and as there is no animal which contributes more to the welfare and comfort of man than sheep, so, also, there is no one which requires more care and attention from him.

The sheep, in a state of complete domestication, appears equally as stupid as it

is harmless, and seems nearly to justify the observation of Buffon, who describes it as "one of the most timid, imbecile and contemptible of quadrupeds." When sheep, however, have an extensive range of pasture, and are left, in a considerable degree, to depend on themselves for food and protection, they exhibit more respectability of character. This is analogous to what we may observe in the human species. By domestication and tender care, the sheep is rendered imbecile. So our children can be made effeminate and inefficient by keeping them from opportunities to develop their mental and physical powers. Is it not much so with the sheep? When trained to take care of themselves, a ram has been seen to attack and beat off a large and formidable dog, and even a bull has been felled to the ground by a stroke received between his eyes as he was lowering his head to receive his adversary on his horns and toss him into the air. And when individual efforts are unequal to the danger, sheep will unite their exertions, placing the females and their young in the middle of an irregular square. The rams will station themselves so as to present an armed front on every side to the enemy, and will support their ranks in the crisis of an attack, harassing the foe by the most formidable and sometimes fatal blows. Such sheep, too, especially display considerable sagacity in the selection of their food, and in the approach of storms they perceive the indications with accurate precision, and retire for shelter always to the spot which is best able to afford it. In the early ages of the world flocks of sheep constituted a large proportion of the wealth of the people. In Palestine they were very numerous. It is stated that Job had 12,000 sheep, besides oxen and camels. When the 12,000 Israelites made an excursion into Midian, they brought away 675,000 sheep. When the tribes of Reuben and Gad made war with the Hagarites, their spoils amounted to 250,000 of these animals. The King of Moab rendered a yearly tribute of 200,000 sheep to the Jews, and at the dedication of the temple Solomon offered 120,000. Travelers have seen immense flocks of sheep in the neighborhood of Aleppo, and Dr. Shaw says that several of the Arabian tribes, who can bring no more than 300 or 400 horses into the field, are possessed of more than as many thousand oxen and camels and treble that number of sheep and goats. Having thus given a short history of the origin of sheep, I will now take up the breeds, and the first will be

THE ASIATIC ARGALIC SHEEP.

"This sheep," says Pallas, "inhabitates the elevated steppes of Southern Siberia and the mountain-chains of Central Asia." According to a statement in the Farmers' Library a few years since, two fine specimens of this animal, a male and a female, were placed in the British Museum, and may be regarded as among the most valuable and interesting of its zoological treasures. "Till we saw them," says Mr. Youatt, "we had no idea of so gigantic a sheep. Huge, massive, heavy and powerful is the Argali of Siberia; an ox, as it were, in stature, but a sheep in form and character. The male stands four feet in height at the back, and measured from the end of the nose to the end of the short little tail over the head and neck, seven feet nine inches. The circumference of the horns at the base is nineteen inches, and each horn measured from its base along the curve to the tip, three feet eleven inches. The horns are furrowed with deep transverse wrinkles, and are boldly

spiral, diverging somewhat laterally. The limbs of the sheep are compact and well turned; the tail is short and the ears are small. The female specimen is smaller in stature than the male, and the horns are considerable less, both as to length and weight. The horns of the male are triangular and convex on the upper apex. Those of the female are more compressed. The pelt is deep, close and full. Its tint is a grizzly brown. The lambs below the knees are whitish; the lips are grayish and the tail grayish. Probably the color varies at different seasons of the year, as is generally the case among wild sheep. The Argali lives in troops and is extremely active and vigorous, bold and resolute. In spring and autumn the rivalry of the males is excited, and they engage in desperate conflicts, striking each other on the head with such violence that they often break off each other's horns, massive and solid as they are fixed on the skull. It is said that even the foxes and other small animals may take shelter in the hollow of these horns on their being separated from the dead animal." Colonel H. Smith speaks of the Caucasian Argali as having horns three feet long, and so heavy and unmanageable when lying on the ground that he found it difficult to place them in such a position as to give a correct idea of their appearance when on the skull. Mr. Kotsbue says: "The Kam-schatkan sheep, which is supposed to be a diminished variety of the Argali, is amazingly fleet and active, exhibiting itself on the loftiest pinnacles, and achieving, like chamois, prodigious springs among the rocks and precipices, and in preparing for these leaps its eye measures the distance with surprising accuracy."

THE ROCKY MOUNTAIN SHEEP.

The Rocky Mountain sheep inhabit the lofty chain from which they derive their name, from its northern termination, in latitude 68°, to about latitude 48°, and perhaps further south. They also frequent the elevated and craggy ridges with which the country between the great mountain range and the Pacific coast is intersected, but they do not seem to have advanced further eastward than the declivity of the Rocky Mountains, nor are they found in any of the hilly tracts near Hudson's Bay. They collect in herds of from thirty to forty young rams and females, herding together during the winter and spring. Mr. Drummond informs us that the Rocky Mountain sheep exhibited the simplicity of character so remarkable in the domestic species, but that where they had been often fired at, they were exceedingly wild, alarmed their companions on the approach of danger by a hissing noise, and scaled the rocks with a speed and agility that baffled pursuit. Some naturalists have supposed that this variety of the sheep family is substantially the same as the Asiatic Argali, but of diminished stature. Others dissent from this opinion, not only on account of its size but of a difference in the curvature of the horns. Those who maintain it imagine that some of the Argali originally passed Behring's Strait on the ice to the American continent.

"The fat-rumped sheep," says Dr. Anderson, "resemble one, another by having—particularly the males—a solid mass of fat formed upon the rump, divided, as it were, into two hemispheres, which take the form of the hips, with a little knob of a tail in the middle. Some of them have horns, but others do not. Its covering is a mixture of hair and wool. Some of the breeds weigh as much as 200 pounds, and

the mass of fat formed on the rump varies from a tenth to a fifth part of the entire weight. In the neighborhood of Caucasus, the hind quarters are salted as hams and sent in large quantities to the northern part of Turkey. It has been supposed by some writers that this breed may be the same as that which was bred by the Patriarchs, in the days of Abraham and Moses. The sacred penman mentions that Moses took the fat and the rump, and all the fat which was upon the inwards, and burned them upon the altar for a burnt offering.

THE CRETAN SHEEP.

This sheep is said to prevail in Wallachia, Hungary, Austria, and the western portions of Asia, but along the Danube it is, or rather was, the principal habitant. It is of the long-tailed variety, though without any great tendency to a fatty enlargement of the tail. On the face the hair is short and of a rusty black; on the body the wool is white and long, perfectly straight, that is, has no spiral curve; thick set and wiry, and is much mixed with hair. Its horns are very large, adding greatly to its striking and picturesque appearance. The horns of the male rise almost perpendicularly from the skull, making a series of spiral curves in their ascent, while in the female they diverge, taking a lateral direction and then ascending. This variety of sheep is said to be vicious and unruly, and of great strength. It has considerable resemblance to the Persian sheep, and black-faced heath-breed of Scotland. The pure Cretan breed of sheep at present is not very common, even in the above countries, as it has been mixed, or has been superseded by the introduction into them of the Merino.

"The Iceland sheep," says Zouatt, "that have come under my personal observation, are of tolerably large size and strongly built. Their fleece consists of coarse hair externally, with an under layer of close wool. Their horns are generally four in number, sometimes six, or even eight, and this is the more remarkable, as the Iceland cows and oxen are mostly polled."

The notices of the wild and Oriental breeds of sheep here introduced are designed rather to gratify curiosity natural to persons on such subjects in rural life than to subserve the interests of agriculture, and to learn how the influence of climate and soil and food can produce so many varieties from a single stock, as seen in the sheep family.

THE MUTTON BREEDS.

Randall classes the mutton breeds as follows: The Leicesters, Cotswolds, New Oxfordshires, South Downs, Hampshire Downs, Shropshire Downs, and the Oxfordshire Downs. The Leicesters, under the most favorable circumstances for their development, perhaps excel others in earliness of maturity, and none make better returns for the amount of food consumed by them. But they require better shelter, keep and care than any other variety. The ewes are not so prolific, nor so good nurses as those of the other mutton families, and their lambs, when first dropped, demand a good deal of attention. The mutton is only medium in quality, and owing to its great amount of outside fat, is not generally sought to supply American tables. The origin of this sheep owes much of its excellence to the sagacity and skill of the celebrated breeder Mr. Bakewell. The Linconshire, the Dorset-

shire, the Gloucestershire, and the New Oxfordshire are large, coarse-wooled and coarse-boned sheep, which have their partisans in particular districts, and are much crossed and intermixed with others, but have not attained the enviable distinction of being improved so as to form a distinct and extensively popular race. The Cotswolds are a larger, hardier and more prolific sheep than the preceding, and the ewes are better mothers. They furnish a valuable combing wool, and are a decidedly favorite sheep with the breeders of long wools in the United States. The Cotswolds, as a breed, are of great antiquity. The South Downs, the original Sussex or South Downs, have probably the purest blood, free from admixture during the long period which covers the rise and development of the British wool manufacture and the increase of meat production of any British sheep. Their improvement has been long continued, and is still continuing, apparently without the necessity of recurrence to any foreign blood for amelioration of a single objectionable point. The Hampshire Downs—this family is the result of a cross between the South Down and a short-wooled English variety of greater size and better constitution. Some writers conjecture that they have also a slight infusion of Cotswold blood. They are coarser in appearance than the South Downs, and their mutton sells half a cent less per pound in the market, but they possess nearly all the good qualities of the former and are hardier. They are favorites in many parts of England, but have not been introduced extensively into the United States. The Shropshire Downs, like the preceding, have been produced by a South Down cross; is a very hardy short-wooled stock, and most of the flocks have also a dip of the Leicester and Cotswold blood. They are nearly as large as the last named families, and they promise to unite to an uncommon degree the good qualities of the short and long wools, being larger than the former and hardier, and the ewes are highly prolific and are excellent mothers. Superior specimens of them are to be found in the United States and Canada. The Oxfordshire Down is comparatively a modern family; is of a cross between the Hampshire Down or the South Downs and Cotswold, and the statements above made in respect to the Shropshires will apply equally well to them, though the two families vary in appearance and in several of their minor qualities. The Cheviot and Black-faced sheep of Scotland have peculiarities which entitle them to a brief notice. Both kinds are of moderate size and good shape, weighing, when dressed, from twelve to twenty pounds to a quarter. Their wool, especially that of the Black-faced, is of a very inferior quality. They are thrifty and their mutton is of the best quality, commanding a high price, from its resemblance in taste to venison, and is much sought after by epicureans. They are both well adapted to the cold and mountainous regions of the country they inhabit. On the upper part of the hill in Northumberland, which is properly termed the Cheviot, is the central locality of the sheep called by that name. They have been there from time immemorial. This brand, however, has greatly extended itself throughout Scotland, and also into Wales. They are without horns and with face and legs white.

THE SHEEP OF THIBET.

The sheep of Thibet, which are very numerous, are chiefly a small variety of the fat-rumped Persian and Abyssinian, with black heads and necks. Some are hairy,

with short wool underneath, while others bear a long, soft and fine wool. It is from the latter that many of the costly Indian shawls are made. Not a little of this peculiar wool finds its way to British India, and is there manufactured. This breed is found in its purest state in the deserts of Great Tartary, no other variety being near to contaminate its blood. It reaches far into the interior and northern parts of Russia, and is much disseminated in China, Persia, Hindostan, Asia Minor and Eastern Africa as well as Thibet. In Palestine it is more numerous than any other breed; indeed the largest proportion of the sheep of Northern Asia being of this description. Professor Pallas conjectures that this character arises in the fat-rumped sheep from their feeding upon the bitter and saline plants found upon the borders of the Caspian and Black seas. And he asserts that when they are removed from the places where these plants grow the fatty excrescence becomes less. But Canfield says, as the fat-rumped and fat-tailed sheep are varieties which are widely dispersed, it seems more probable that they may have been produced by accident, and may also have been perpetuated by accident, design or fancy. The fat-tailed sheep are very extensively diffused; it is found throughout Asia and a great part of Africa, as well as through the northern parts of Europe. They differ, like other sheep, in the nature of their covering. In Madagascar, and in some other hot climates, they are covered with hair; at the Cape of Good Hope they are covered with coarse wool; in the Levant their wool is extremely fine. The proportion which the weight of the tail in some of these sheep bears to the whole carcass is quite remarkable.

The usual dressed weight of the sheep is from fifty to sixty pounds, of which the tail is said to make more than one-fourth part. Russel describes two breeds of fat-tailed sheep about Aleppo; in one the deposit of caudal fat is moderate; in the other sort the tail is much larger. The unctuous fat of the tails of these sheep is accounted a great delicacy alike by the Boers and the Hottentots of Southern Africa. The Hottentots, in their primitive condition, possessed immense flocks and pursued the pastoral arts with great success.

MERINO SHEEP.

The original importation of Merino sheep into the United States, from Spain, included all the most prominent Cabanas of that country. But, as a general thing, the different families, even when preserved pure from foreign admixtures, were crossed promiscuously with each other. The Saxon, French and Silesian Merinos were of later importations. Of the original Spanish stock but two are now represented by distinct families, namely, the Infantado and the Paular. These sheep, originally imported by Colonel David Humphreys, of Connecticut, have been preserved pure to the present day. They are a fourth, if not a third heavier than their Spanish ancestors, and are the largest family of American Merinos. It may not be out of place here to give a short history of how the first Spanish sheep were brought into the United States. The following is from the pen of Mr. William Jarvis:

"In 1801, General Humphrey, being then Minister Plenipotentiary at the Court of Spain, purchased 200 of these sheep in that country, and shipped them for their

place of destination. They arrived in the spring of 1802. It seems to have been a custom at the Spanish Court, when a foreign Minister was recalled, on taking leave, a present was made to him of five or ten bars of gold, each bar weighing a pound, or thereabouts. But, as the law of his own country forbids any Minister taking presents from a foreign government, he declined this overture, and suggested to the Spanish Minister that royal license be granted to take out of the kingdom 200 Merino sheep, which would be a great gratification to him. This the Spanish Minister stated could not be done, but intimated to the General that if he wished to take them out no obstruction should be thrown in his way. The sheep were accordingly procured and forwarded."

In conclusion, the acuteness of the sheep's ear, says the Ettrick Shepherd, surpasses all things in nature that I know of. A ewe will distinguish her own lamb's bleat among a thousand, all braying at the same time. The distinguishment of voice is perfectly reciprocal between the ewe and the lamb, who, amid the deafening sound, run to meet one another. There are few things that have ever amused me more than a sheep-shearing, when the sport continues the whole day. We put the flock into a fold, set out all the lambs to the hill, and then set out the ewes to them as they are shorn. The moment that a lamb hears the voice of its dam it rushes from the crowd to meet her, but instead of finding the rough, well-clad, comfortable mamma, which it left an hour or a few hours ago, it meets a poor, naked, shivering—a most deplorable looking creature. It wheels about, and uttering a loud, tremulous bleat of despair, flees from the frightful vision. The mother's voice arrests its flight; it returns—flies—and returns again, generally for ten or a dozen times before the reconciliation is fairly made up.

On motion of Mr. Nixon the thanks of the association were tendered Mr. Mitchell for his able address.

DISCUSSION.

President Beeler. Can any one give the origin of the sheep of our State? I remember a sheep when I was a boy which had a brown nose, called the Moravian. The bucks had small horns.

Mr. Hariman, of Morgan County. I am a pioneer of this State, have been here since 1820, residing in the vicinity of this city, and in Morgan and Hendricks counties. My recollection is that the sheep of which Mr. Beeler speaks were imported into Georgia by some pioneer, from there found their way into North Carolina, and were brought here from there in the first settling of this country. The first of this class was found on White Lick creek. We had another sheep from the East which was small and beautiful, but would yield only from three to five pounds of wool. They were a hardy sheep and lived in the woods, but did not produce as much wool as those from the Southern States. The wool of those Southern sheep was white, and on the hams it was intermixed with hair—the face was similar to the South Down. The great difficulty in raising sheep in the early settling of this State was the ravages of wolves. Those two breeds of sheep are the only ones that I have any remembrance of.

Mr. Mitchell. We have the Rocky Mountain sheep—we do not know how they got there. I have hunted many volumes to learn why it was that they came to a

certain line and stop spreading over the country. We find no trace in certain localities. It looks strange to me that they, unlike deer, should remain only on the mountain range.

S. W. Dungan. Perhaps that particular place was better adapted for their health, as it is dry and elevated land.

President Beeler. It may be those Rocky Mountain sheep can protect themselves from wolves better than many other kinds. The courage of rams in fighting is very great, they will often fell a bull.

I. N. Cotton. In 1852 I was in the country where those sheep inhabit. Some of them have very large horns; these are doubtless used to keep off an enemy. Writers say they are also used in jumping, by lighting on them and bounding over.

Messrs. Thompson, Ridgway and Jordan were appointed a committee on programme.

BEST MODE OF CONDUCTING THE SESSIONS OF THE WOOL GROWERS' ASSOCIATION OF INDIANA TO SECURE A LARGE ATTENDANCE.

BY HON. CYRUS T. NIXON, INDIANAPOLIS.

Mr. President: I was directed by the association, at its last June meeting, to prepare a paper, and read it at this session, on the subject: . "What is the Best Mode of Conducting the Sessions of the Wool Growers' Association to Secure a Large Attendance?"

As a foundation principle, we must be sure that the interests we seek to advance by this association can be improved by us, and that when so improved, they will add to the wealth and happiness of mankind.

If there is room for the advancement and improvement of the wool interests of Indiana, I believe it can best be done by an association like this, where men may come together, and, by the various means that may be used here, disseminate knowledge and encourage each other in the work to be done. And, if "in union there is strength," it follows that an association, with a large membership constantly in attendance, energetic and enthusiastic, is more powerful for good than one in a feeble, dejected and paralytic condition.

I undertake to say that there is room for improvement, for I think it is a fact that no one will deny, that the wool growing interests of this State are in their infancy, and that no State in the Union, in proportion to wealth, population and extent of territory, has so few good sheep, and produces such a small quantity of good wool, as the State of Indiana. And, when you place with this the additional fact, that very few of the sheep that take premiums at our State fairs are natives of this State, it shows clearly what a laggard the wool interest of Indiana is, and what a great work there is, before this association.

If we admit the point that is sometimes made against us, that the soil and cli-

mate of our State are not adapted to the health of the sheep, and the growth of good wool, we may as well disband this association and discontinue the fight. But I assert that our soil and climate are right, and that from our location, in an agricultural and commercial point, the general intelligence of our people, the greatness of our wealth, the vast extent of our territory, and our unparalleled shipping facilities, we have placed in our hands the means by which we can make Indiana the foremost State in the Union in sheep and wool interests. It is the work of this association to convince the people of these facts, and then, with the appliances that may be used here, to educate them up to the point of properly taking care of sheep and wool.

I think, Mr. President, that these few words will convince every one here of the necessary existence of this association to advance these interests. And now I come to the main question, "How shall we increase our attendance upon these meetings?" Every county in the State of Indiana ought to be represented in this association; and if we had but one member from each county constantly in attendance, it would make our association wonderfully strong. By a little care and work we can have more than one member from each county. We have now upon our membership rolls about seventy names. Suppose, now, that each one of these should make it a point to present, at our next meeting, a half dozen new names for membership, how rapidly our numbers would increase. And this can be done, if each member will only resolve to try to do it, and our association can soon be made so large in numbers that these rooms will not contain it.

For the purpose of encouraging all members to work heartily for a larger membership, I recommend that some system of awards by cash premiums be inaugurated, and that there be a first, second and third premium given to the members obtaining, in any one year, the greatest number of new members. You pay a premium for the best wool, because it advances the interests of the association. Why not, then, pay a premium to the members who present the greatest number of names for membership within a given time? That, too, would advance the interests of the association. I believe that this plan alone, if wisely inaugurated and faithfully carried out, will bring us all the members we want, and temporarily make our association very strong. For the purpose of preparing for this arrangement, I recommend that the Secretary be instructed to prepare, by corresponding with some one in each county, a list of the principal wool-growers in each county in the State, to the end that documents from this association, and other places, may be sent them, to cause them to take an interest in our work; and that when so prepared, the Secretary furnish each member of the association with a copy of said list.

But I think, Mr. President, a more serious question than the original one, comes in right here, and that is, "How are we to retain and keep together this large membership when once obtained?" Our attendance, after this great effort to increase our membership, may be very full for one or two meetings, but unless our session proceedings shall be managed with care and wisdom, and in some way made uncommonly interesting, our membership will gradually dwindle away again.

We must, then, make every meeting an interesting one, and so much so that each one in attendance will feel that this is a good place to obtain information, and that it will be to his interest, and is his duty to be faithful in his attendance.

For this purpose I recommend that we continue our system of essays and addresses by the members, on such subjects as will best interest our members and the public. And this work should be conducted, as far as possible, in such way as to bring into use the ability and information of new members.

We should, also, at each meeting of the Association, have an address or an essay from some eminent citizen of the State or Nation, whose very presence here will insure a large audience, and bring into contact with the Association those outside who can not be reached in any other way.

In preparing for these lectures and essays, there should be no disappointments and failures inflicted upon the Association. That is to say, whenever a member shall be appointed to do a certain work, he should accept the work promptly, and faithfully carry out the wishes of the Association. No one should be appointed or invited to read or speak where there is doubt about the fulfillment of the work, and those who habitually in the future agree to assigned duties here and then fail to perform, must be treated as triflers and unworthy of confidence. Sickness, death, or some other unavoidable circumstance, should be the only excuse.

As another means of keeping up an interest in our meetings, and make them more largely attended, I recommend that our annual exhibition of wool at our June meetings be continued, *and greatly enlarged*. The exhibition of wool in small parcels, as practiced here, may be the best way, but I have my doubts about it. I do not think it can be a fair test, generally speaking, only, perhaps, as to grade and style of wool. I am thoroughly convinced that the sheep that will shear the heaviest fleeces are the most profitable sheep for a wool grower to raise. You doubtless have noticed that most wool experts are buyers, not sellers, of wool, and they give their awards to that class of wool which manufacturers would rather buy, and for that reason are generally apt to award to the lighter grades, frequently, no doubt, giving the awards to samples from fleeces weighing from six to ten pounds, when they would reject samples from fleeces weighing from sixteen to twenty pounds, and yet every one who will think about it will know at once that the cash value of the heavier fleeces is nearly twice as much as the lighter ones. I do not wish to interfere with your usual manner of exhibitions and rewards, but I do ask you to add to it the exhibition of whole fleeces, and the award of premiums to the heaviest of each kind; and these exhibitions and awards should apply not only to wool raised in this State, but to wool raised anywhere. What we want is the best and heaviest, let it come from where it may. And these exhibitions of wool ought to be made one of the leading features of our meetings, to the extent that these rooms shall be filled annually with samples, which will bring hundreds of new spectators; and if, in these samples, there happen to be fleeces heavier than we are in the habit of raising in this State, let every Indianan then and there determine to improve his sheep and wool until his own sheep take the prizes, both as to quality and weight of wool.

It is a very encouraging thing for gentlemen to hang their certificates on the walls of these rooms, that they have sheared fleeces weighing from sixteen to twenty pounds. But does that satisfy their ambition? They ought to hang up new certificates every year, and each year should certify to an additional increase of fleece. Let them bring their fleeces here and weigh them as a whole, in the presence of the

Association and the spectators, and take our instructions to have their fleeces at least one pound heavier when they bring them again.

It was a good thing that Mr. Cotton did at the last June meeting in exhibiting a fleece from a Merino buck, weighing twenty-two pounds, but if the Association will encourage me in this exhibition, I will agree to exhibit fleeces at the next June meeting that will weigh a third more. I will agree to exhibit a buck's fleece that will weigh thirty-three pounds, and a ewe's fleece, a sucking ewe into the bargain, that will weigh eighteen pounds.

Now, Mr. President, if it shall please the Association to adopt my recommendations as to this wool exhibition, I do hope that every member here will take a personal part therein by bringing here for exhibition a few of the very best and heaviest fleeces that can be found, inside or outside of the State.

Mr. President, I apologize for making this paper so long, thank the members for their patient listening, and ask their criticisms on what I have said.

On motion of Mr. Quick a vote of thanks was tendered Mr. Nixon for his able address.

DISCUSSION.

S. W. Dungan. All the suggestions in the address are good. I heard none but what I really in my heart approve. The suggestion in regard to every member performing every duty or responsibility that was placed upon him, especially met my approbation. There are members here who know nothing of the early struggles and discouragements of the Indiana Wool Growers' Association. I was one of the charter members and I believe the only one of them present this evening. It was organized in Johnson county as a county association. I made the suggestion in our county meeting at Franklin, that it become a State institution. Quite a number of our prominent members objected to bringing it to Indianapolis, but finally we succeeded and made an effort here. Bros. Beeler, Sunman and Quick are the only members that first met here to organize this Association. We labored under many difficulties, but I feel very much encouraged this evening with the prospect of the Indiana Wool Growers' Association. It has grown beyond my most sanguine expectations. I would like to see this paper published in our State papers. The great trouble with our agricultural reports is there are comparatively few people who get them. It would be of advantage to the wool growers of the State were it published in the agricultural papers, and I hope this Association will adopt many of the valuable suggestions set forth in the address.

Mr. Hariman. If we expect people to come to our meetings we must have something interesting for them to listen to. When I read in the papers that Mr. Hodson, of Canada, was to be present at this meeting, I felt an interest to come and hear him. I am turning my attention to sheep raising more than cattle, and I thought by hearing Mr. Hodson I might learn something about breeding and rearing sheep. We should come here with no other purpose than to learn how to improve our stock of sheep. I apprehend offering a premium for the heaviest fleeces will have a tendency to bring men here. We have a meeting here next June. By offering a small premium men would want to come to the meeting, and in this way get up a little excitement, which might prove beneficial.

Rep. Chicago Review. You don't have any need to go to Canada to get men to write addresses for you; there is good material here at home.

Mr. Nixon. We should not announce that Mr. Hodson or any other prominent person would be in attendance unless we are sure of it. It would be to the injury of this Association if we do.

Pres. Beeler. I coincide with Mr. Nixon. In putting a man on the programme just because his name is great is wrong. Men come here and do not find him and feel disappointed.

T. W. Sunman. I think we should not patronize those foreign men too much, but use our home talent and influence. I think they are much better than far brought talent.

S. W. Dungan. Some little explanation is perhaps needed in the case of Mr. Hodson. A statement that an address by Mr. Hodson would be read here does not imply that the gentleman in question will be here in person to read it. I have known him for several years, and he is a very successful breeder of sheep, and I am sorry that he is not here. There is one man I would like to hear at our next meeting, that is of national reputation and President of the National Wool Growers' Convention. I refer to A. M. Garland. I move that the President be requested to correspond with him on the subject.

President Beeler. I would also like to have W. J. Morgan, Secretary of the National Wool Growers' Association, to be with us. He is a man of much general information.

Mr. Nixon. The reading of the President's address this morning recalled to my mind forty-five years ago, of the difference in the quality of the sheep then and now. After listening to Mr. Mitchell's address, it occurred to me that he left out an important breed of sheep in Southern Indiana. We young people used to say they were only fit to clean up old brier fields. Col. Gresham once said that his sheep fed on sassafras, and the mutton tasted like sassafras tea.

Mr. Cotton. Forty-five years ago we had a breed of sheep which gave us considerable trouble. We had to pile up logs and brush to keep them from jumping, but now we hear nothing of it. We have, in the north part of our county, the red fox, which is giving us some trouble by killing our lambs. They are bold, and come right into our fields.

Mr. Nelson. They are on the increase in Central Indiana. As yet, I have but little damage done by them. Returning again to the sheep question, I have no story to tell. In regard to rams butting, I have a very large one, that has a propensity in that way. I would like to know how to treat him.

Member. Be kind with them, and not tantalize them. They generally do it on the sly. I generally carry a stick with me, and unexpectedly hit them on the nose without letting them know that I was aiming to.

On motion, a committee, consisting of Messrs. Cotton, Ging and Quick, was appointed to report on the suggestions contained in the speech of Mr. Nixon.

Mr. President: Your Committee, to whom was referred the paper of Hon. Cyrus T. Nixon, beg leave to make the following report, and recommend that the following premiums be offered by this Society on wool, to be awarded at their June meeting:

On best sample fine wool	\$1 00
On second best sample fine wool	50
On best sample long wool	1 00
On second best sample long wool	50
On best sample down wool	1 00
On second best sample down wool	50
On best sample grade wool	1 00
On second best sample grade wool	50
On heaviest fleece fine wool	1 00
On second heaviest fleece fine wool	50
On heaviest fleece long wool	1 00
On second heaviest fleece long wool	50
On heaviest fleece grade or down	1 00
On second heaviest fleece grade or down	50

I. N. COTTON,
S. R. QUICK,
B. F. GING,
Committee.

The report was adopted.

MORNING SESSION.

FEBRUARY 2, 1882.

The meeting was called to order by the President, and the Association listened to a paper on

IN THE COURSE OF GENERAL OR MIXED HUSBANDRY, HOW MANY SHEEP CAN BE KEPT PROFITABLY TO THE ACRE.

BY URIAH PRIVITT, GREENSBURG.

I will give you my experience as a breeder. I can not say as to an exact number, as I never tested it, but I can give you my idea, as I have tried to see how many sheep I could pasture on one timothy meadow. During the summer and fall seasons, I kept sixteen ewes and fifteen lambs on nine acres, and cut five tons of hay on the same meadow. This last season I kept twenty-six ewes and twenty-one lambs on nine acres of clover meadow until the first of August. Then I took the lambs off and kept about twenty head until the first of November, and had good pasture all the season. It will not do to pasture sheep on one little pasture like that all the time, it is best to change your sheep on other pastures during the season. I would prefer timothy or blue grass for sheep after the middle of July. I think lambs should be changed off of clover if they are running on it, and breeding ewes should be taken off clover two weeks or a month before commencing to breed, or, at least, that has been my experience. I believe we have only about one sheep to every thirteen acres of land in this State. I think we could make it profitable

to keep about one sheep to four acres, or twenty-five sheep to the one hundred acres. At this ratio we would have about 5,000,000 sheep in Indiana, where we now have only about 1,500,000, and then we could supply a part of this 50,000,000 pounds of wool we have to have from the other side of the water each year. I think there is more profit in selling our lambs at about four months old, but there is very good profit in keeping our lambs until we get the first crop of wool, and then sell the last half of June. Some think it pays to keep them on until February and then sell, as sheep are higher then than at any other time of the year. One thing more I would advise breeders of sheep to do, and that is to always keep out a few of their best ewe lambs and cull out such as are not good mothers.

When we speak of a general or mixed husbandry, it is understood that we keep other stock in proportion. We should have all kinds of stock in proportion, and let us have as good stock as we can afford. Always use pure bred males, for it is cheaper than to have a scrub given to you to breed from.

On motion, a vote of thanks was tendered Mr. Privett for his address.

DISCUSSION.

S. R. Quick. I would like to hear from some of our brother sheep-raisers upon this important subject.

I. N. Cotton. He talks of mixed husbandry. I think it depends upon the amount of land and the kinds of grain we produce. If we sow our farm in wheat we have not the same room for sheep as we would under some other circumstances. With a farm of 200 acres we can have 100 head of sheep and some horses and cattle.

Mr. Howland. When we come to mixed husbandry, we inexperienced persons are apt to go to excess, and more liable to in raising sheep than any other kind of stock. A man who starts on an eighty acre farm and puts 100 head of sheep on it, he has but little room for other stock. Eighty acres should never have more than fifty head of sheep and those should be ewes, and I would prefer a flock of thirty. There is not much profit in a flock of sheep where land is \$75 to \$125 per acre, only to keep that farm properly dressed up, to keep the weeds and sprouts properly browsed out. Sheep can do this cheaper than any other way. Where there is a flock of thirty to fifty sheep on eighty acres, it is generally free from weeds. Another advantage in keeping sheep; they enrich the soil more than any other kind of stock, and cheaper than any other kind. I don't care to raise more lambs than ewes; I prefer one to the ewe, keeping all the good ewe lambs and selling the bucks and as many of the old ewes as he reserves of ewe lambs, so as to keep the flock about the same in size. A flock of sheep kept in that way will even pay on high priced land. We often find young people going into the sheep business and never stop until they get their fingers burned. There is a certain place to stop in breeding all kinds of stock as well as in all kinds of farming. While sheep are good to enrich the soil, we should not overstock so as to eat our pastures down.

S. S. Richie. Young men are very apt to overstock themselves with sheep—it is a matter we should guard against—also the keeping of ewe lambs. We should sell off the buck lambs every year and not allow the farm to become overstocked.

Mr. J. L. Thompson, of Arcana, being called upon for his paper, stated that he had prepared none, but spoke briefly on "Can Root Crops be made Profitable as Sheep Feed in this Locality?"

Mr. J. L. Thompson not having prepared an essay on "Wintering and Feeding Sheep," as per programme, spoke briefly, as follows, on the subject:

"It is a subject of some importance to the wool-growers of Indiana, and should have been assigned to a man who has practiced feeding root-crops. I observe they feed them in other countries, and especially in Canada. It is a necessity there. They feed them with great profit in England; it increases the amount of wool one-half and doubles the quantity of manure. At the same time, those countries are differently situated from ours; we can grow corn, and they can not in Canada and England. I was in Canada in November; the sheep were doing well on turnips; I thought I should have to feed turnips. I came home and found our sheep doing well yet on blue grass. Up to the time grass was snowed and sleeted under, sheep did much better on it than on turnips. I am of opinion that shock-corn is very profitable for sheep, and I am fully satisfied where we feed on a large scale we should feed in the field; by doing this we get the manure where we want it."

Question. Did you have any difficulty about your sheep getting sore mouths?

Mr. Thompson. No; I had no trouble in this way. I bought a bunch of thirty-eight sheep; every one thought they were in such a condition that they would do no good. I gave them all the corn they would bear; those sheep fattened wonderfully; eleven of them weighed 1,960 pounds; they were selected from the lot in a hurry, and several of those eleven head were half-blood Merino-Shropshire; a Merino ewe weighed 100 pounds, in good flesh, and old wethers 180 pounds. I got five cents per pound, weighed at home. By feeding shock corn we can estimate what is in a shock of corn. I think I realized \$1.00 per bushel for the corn, and something for my labor; I feed it to them without husking it off.

Mr. Cotton. Do you have any trouble in feeding your sheep in muddy weather?

Mr. Thompson. They won't eat corn in the mud; if the grain is a little dirty they let it alone; in muddy weather troughs would be preferable to feeding on the ground. I have been very successful in the treatment of culls; my mode is to feed them all they will bear.

Mr. Cotton. Do they waste any corn by turning them into the field?

Mr. Thompson. I turn them in and waste no corn. If the ground is frozen they catch most of the corn and clean up before they leave.

Mr. Robe. Part of this corn was cut up, was it not?

Mr. Thompson. No, sir; it was standing corn. It wont do to turn them to the shocks, they will destroy the shocks.

Question. How could the sheep get the corn on the high shock?

Mr. Thompson. I don't know, sir; they manage to get it some way.

J. W. Robe. When is the best time to turn in? In the fall?

Mr. Thompson. I think it is late. They will run around the fence and spoil all the grass first. It don't do well until cold weather comes. I think it would be a success such a winter as this. There is no profit to feed sheep more than there is a gain.

Question. How long do you have them on full feed before selling?

Mr. Thompson. From the first to the middle of November, and I let them have all the blue grass and do not let them eat much corn, especially sheep gathered up over the country. This subject of feeding sheep is a matter of no little importance to the wool growers of Indiana. The greatest mistake of wool growers in a small way, is that of selling their wethers, after shearing, for two or three dollars. It is very profitable for the one that buys, but not for the one that sells. He could feed until now and get six or seven dollars. Cull sheep should be fed well. I think they will bring a good price. Old ewes fatten about as well as anything you have. I can make more money by fattening them than I can any other way.

Question. What would you do with one that has lost her teeth?

Mr. Thompson. I think it would be better to separate them and feed them mixed feed.

Mr. Howland. There is a better plan than to sell our wethers for two or three dollars. I sell mine as bucks, when lambs, to the butchers. I sold mine last year, the first of June, at three dollars and seventy-five cents apiece. I have my lambs to come in January and February, and sell them in June.

Mr. Beeler. We are not all so situated as Mr. Howland.

Mr. Howland. If you have a car load you can take them to the stock yards.

Mr. Ging. For the last six or seven years I generally sell off my entire flock in May and June, and go to Cincinnati and buy 100 ewes, principally of South Down. About the first of September I turn a buck in with twenty-five ewes. My lambs are dropped the last half of January and the first half of February. As soon as I get my sheep to eating I put some hogs up and put some sheep with them, and let them eat all the corn they want. I have the ewes, by the time the lambs are dropped, in good mutton shape. When the lambs are ten days old I turn them on rye. I generally sow from seventy-five to one hundred acres. I take the feed off as soon as I turn on the rye. I let them remain on the rye until the middle of May, and then I sometimes shear, and sort out all my lambs and send the ewes and lambs together to Cincinnati. I get five cents per pound for ewes and six or seven cents for lambs. By turning them on the rye the ewes don't suckle down at all. In my experience I have found it more profitable than any other way of handling sheep. By this method last year 100 head of sheep brought me \$500 clear money. The South Down produce a hardy lamb, and fatten up quicker than some other breeds. Out of 100 ewes I raised 115 lambs, dropped in January and February and sold in May. Eighty-four of those lambs averaged sixty-seven pounds to the lamb.

Mr. Cotton. Do the butchers object to killing ewes in the milk?

Mr. Ging. They object some, but not much. I have found out that in feeding sheep for market the best feed is corn and cob ground up together. They will eat it all up. I can not tell whether there is any fattening qualities in the cob or not.

Mr. Morris Howland. My experience in feeding sheep is similar to that of the gentleman just spoken. Corn is the essential element. You can't get too much in them. It gives you dollars and cents in your pocket. Two years ago I had quite a number of culls. I turned them on a field of rye. On the 10th of February I had them driven up and commenced sorting them. I took the thinnest of the flock, killed and skinned it. It was fat. The rest I drove to the stock yards. I was offered three dollars per hundred. I sold them at three dollars and seventy-five

cents. I had realized \$125. Since that time I am not afraid of toothless "grannies." They will do well if you have the right kind of feed for them.

Question. At what age do they lose their teeth?

Mr. Howland. I have found some at two years old to lose their teeth. I do not know just how old they have to be. I think they never lose their grinding teeth.

THE WOOL GROWERS.

Governor Porter being present, was introduced, and made the following remarks:

Indiana is not one of the great wool-growing States, yet the production of sheep for their wool and their flesh is steadily increasing. In 1880 the number of sheep in the State, according to the United States census, was 1,029,570; in 1882, according to the report of our Bureau of Statistics, the number was 1,092,701. The wool clip of the State was, in 1879, 3,894,125 pounds; in 1880, 4,836,648, and in 1882, 5,085,159. This shows a gratifying growth of this industry. The leading sheep growing county is Steuben, in which, in 1882, there were 38,319 sheep. Lagrange had in that year 33,949; Adams, 32,436; Owen, 28,632; Elkhart, 27,629. In taking any considerable number of years as standard, it is believed that no industry furnishes better returns than skillful sheep growing. While food and raiment shall be wanted, there will be a demand for mutton and wool. Highly improved as our breeds of sheep have become, there is none that satisfies all the conditions desired. We want a breed that will unite great weight and a fine quality of wool, with increased weight and excellence of flesh. We want it also to possess the quality of hardiness, and while not flourishing under great neglect, not to require that nicety of care demanded by some of the most select breeds. We want what is best in the Merino, the Cotswold, and South Down combined in a single stock. Exertion will not stop until such a breed is produced. When Goodyear had wasted his all in fruitless experiments for the vulcanization of rubber, and still persevered through poverty and neglect, luck at last came to his help and gave him the prize that it had denied to work. Chance or intelligence will yet give us the breed of sheep wanted, if we will persevere in the present.

The great demand abroad for American beef and pork should, I would think, incline us to raise sheep more for their flesh than we have ever done. We should produce a mutton that for superiority of quality would create a large demand for it abroad. And it would seem to me that near our cities it would be profitable to raise our sheep with more particular reference to superiority of flesh than in the country districts. We could soon create a demand for South Down mutton that would place its price in our city markets much higher than the flesh of common sheep. The trouble is now that so little of it ever reaches our Indiana markets that our tastes are uneducated, and a foundation for a proper discrimination has not been laid.

Mr. Webster, it is well known, was fond of the pleasures of the table. At his

dinners the best cuts of South Down mutton always figured conspicuously. And I remember once having heard Henry Winter Davis say that, though he had often heard Mr. Webster speak, he had never heard him speak so eloquently as when once, at a dinner given by Mr. Webster to Mr. Clay and other distinguished guests, Mr. Webster held upon his fork the choicest bit of South Down roast, and, discoursing upon the history of the South Down breed and upon the choicest parts for the table, he passed, with a lofty grace, to Mr. Clay the choicest bit of all. Let there be placed in our butcher shops this superior quality of mutton, and it will not be long until the public palate will be cultivated to the point of paying the price for it that will repay the farmer for the cost and pains of producing it.

DISCUSSION.

President Beeler. The butchers say there is no discrimination in this city; they can not get sufficient price on the good to afford to keep it. The South Down will usually command the best price in our best markets.

Mr. C. A. Howland. The gentleman is right as to the South Down. It is evidently the best mutton sheep there is. The Governor is a little fast in his opinion of mutton; he seems to want pure blood. Take a cross between the Cotswold and South Down; it fattens readily and makes good mutton.

Gov. Porter. How much reduction would it be from the South Down and Cotswold?

Mr. Howland. Nothing; it makes a good sheep.

Gov. Porter. How about the fleece?

Mr. Howland. A little lighter; the South Down is not so heavy as the Cotswold. You get those fine fleeces in the Merino.

Gov. Porter. I was thinking the Merino was a heavy fleece.

Mr. Howland. The impression is we are coming more to that point in which we look more to the mutton quality of the sheep. If they take the tariff off of wool the United States may compete with any country in the world.

Gov. Porter. How is the quality of the Shropshire as compared with the South Down?

S. S. Richie. I have heard there is no difference. The Shropshire is a little larger and the fleece a little closer.

Gov. Porter. There can be no discrimination until a mutton is thrown on the market.

Morris Howland. I am fond of mutton. I am not particular about the kind, but if you get a Merino fat you may place it down by the best Shropshire or South Down. I find good sheep in all breeds. The Cotswold is a noble sheep. If you will cross the South Down with the American Merino you will get a better and more hardy sheep than any other.

Mr. Nixon. Does the amount of wool on the sheep cut any figure in the price of the sheep?

Mr. Howland. Yes, sir; wool cuts a great figure; it is worth much more than when it is off.

Mr. Mitchell. The American people, as a nation, are not mutton eaters. There

are other nations who desire our meat and pay us better prices, and we are left to eat the culls, as the Governor said. If we pay a good price we can get good mutton. If you want good beef or mutton you must breed them pure. Until we realize better prices we will hardly get first-class beef and mutton here, but animals hardly fit to kill will be put on the market.

S. R. Quick. The best of our sheep and cattle are never sold here. Salt has something to do with the quality of the flesh. We should put salt in the reach of our animals so they can get it daily. I think it makes the meat more juicy and tender.

Convention adjourned until 1 o'clock P. M.

AFTERNOON SESSION.

Dr. Conkle read the following essay on the "Profitableness of Pasturing Wheat with Sheep."

IS IT PROFITABLE TO PASTURE WHEAT WITH SHEEP?

BY DR. JONATHAN CONKLE, OF CASTLETON.

I am surprised at so great an audience as that of the Wool Grower's Association of the great State of Indiana, to call upon me to address you upon one of the greatest subjects of the world, since I am now fifty odd years old, and this occasion is the first time in my life, outside a Sabbath School convention or a country debate, that I have had the honor of addressing such an intelligent and worthy assemblage as you are.

IS IT PROFITABLE TO PASTURE WHEAT WITH SHEEP?

Wheat, gentlemen, is one of the finest cereals grown in any country for bread for the million. It has been grown from the Ural Mountains in the east, to Spain and Portugal on the west, and from the countries bordering on the Mediterranean Sea, to the Japanese Islands in the west; in all climates and degrees of latitude and degrees of longitude, the world over, from time immemorial. Sheep have been herded and grown many years before Christ. Anciently, the greatest wealth, even of kings and princes, lay in sheep. For instance, 2d Kings, 3d chapter and 4th verse: "And Mesha, King of Moab, was a sheep master, and rendered unto the King of Israel a hundred thousand lambs, and a hundred thousand rams, with the wool."

We have no doubt but their flesh was of the most delicate and delicious, from the fact it was used on the sacramental altar as a burnt offering by the ancients, and was used as food by the most royal patriarchs before the deluge. And they were more prolific than now. My best author says, in the countries of Mesopotamia, Italy, etc., the ewes bring forth their lambs twice a year.

Now, then, to get more to the point. Although I must say the prime of my life has been very busy in the study of surgery and the practice of medicine, and I have tried to do the world a great deal of good, or the people therein, and I have

no doubt but I many times succeeded; but again, in the riper years of my life you find me just as busy, studying and laboring to raise the finest cereal, called wheat, for bread, for market, and the most money; and sheep, the most patient, harmless and useful of all animals, for its delicious flesh to feed the hungry, and their wool to clothe and comfort all men with the very best clothing, the most durable, substantial and beautiful, silk not excepted.

"Is it profitable to pasture wheat with sheep?" I will answer, "Yes," and have proved it by actual experience, as follows:

On the 10th day of September, 1881, I drilled in six acres of Early Amber wheat, on wheat stubble ground, which came up even, nice, and grew well for a time and gave promise of twenty or more bushels to the acre. Finally it began looking yellow or scorched in places. I walked over the field and found it to be general. On further examination those yellow stalks contained ten or twelve brown larva or nits; on some stalks not so many and some even more. They were found about the first and second blades. The field, now about the first of November, looked to be an entire failure. However, November 17th turned cold, and by the 20th, the ground was frozen hard with but little snow. I turned on, at once, forty ewes, and I left them there day and night until the first day of December, spring water in the field.

The weather moderated, and the ground now soft, I turned them off and on blue grass. I now examined my field again and found much of this affected wheat bitten off to where this larva existed, and a great deal was nipped off close to the ground. Of course, thousands of these larva were eaten by my sheep, and perhaps fully as many were trodden by the many feet, and exposed to the elements, which would destroy the remainder. At harvest I gathered the crop, thrashed it, and my yield was fourteen bushels to the acre, of good, marketable wheat, machine measure.

I imagine I hear some one say that this process will make our wheat cheaty, which compels me to say something about the origin of wheat.

Some curious facts in botany have been recently laid before the French Academy, relative to the transformation of two grasses, *Ægilops obata* and the *Ægilops triaristata*. M. Esprit Fabre, of Adge, in France, has, without the aid of books, and by simple experiments, brought forward a capital fact, showing the mutability of vegetable forms, and by actual experiments, which occupied seven years' time, he proved that the above grasses were capable of being the source of, all, or the greater part of our species of wheat. He first sowed the seed of the *Obata* in the fall of 1838. In 1839 the plants grew to a height of two feet, and ripened in the middle of July. The heads here and there had one or two grains in them. In 1840 the seed of 1839 produced heads more numerous, and generally each contained a couple of grains of an appearance more like wheat. Thus the process was continued and in 1844 all of the heads were filled. In 1845, the seventh year, the plants had reached the condition of true wheat. To use the gentleman's own language, "These experiments were made in an inclosure surrounded by high walls. There was no grass inside of it, and no grain raised near the spot." In 1846 he sowed this grain in a field broadcast, and continued it for four years. In 1850, the straw was full, straight, over two feet high, and each head contained two or three dozen

grains of perfect wheat. Thus you see, gentlemen, a savage plant, subject to cultivation, changed its entire figure and aspects, and gradually assumed a new character.

Wheat then, gentlemen, becomes cheaty, (if you will allow me the expression,) when sown successively on the same ground; or, in other words, when the germ life begins to wear out, and when the productive life wears out; wheat will, beyond a doubt, run back to its origin.

Now then, gentlemen, while the seed is in utero (if you will allow me to use the term), and while in gestation, the loss of its foliage does not hinder its production. However, wheat must have the proper rootlets to drink up the vitality necessary for its nature when the season comes on for its production, and to gain this advantage we have to be on time with planting of our seed. Wheat may be sown from the 20th of August to the 20th of September in the North Temperate Zone and latitude forty. At all events, it must be in the ground in time to gain sufficient roots to stand the fall drought and the cold blasts of winter. And if the foliage should become too great, on account of fine irrigating weather, and danger of jointing before cold enough weather comes to check its growth, turn on your sheep at once, and how they will fatten!

I have no doubt but degrees of latitude and degrees of longitude have their effects upon the wheat plant, which I can not take into consideration now, since this Convention is well represented from various localities in our State, and your experience, gentlemen, will teach you more in that direction than I have time or space to tell you; but from actual experience by a friend and brother, whom I can believe and vouch for as a matter of fact, Jona F. Lemon, who resides in Lawrence township, Marion county, owns and lives on a farm of some 400 acres. He is my neighbor, is a successful farmer, and a close observer. He says he broke up a twenty-acre field of timothy sod, and put just one-half of the field in wheat, and the other half in fall barley—all done in good order, and a furrow drawn between.

This was not pastured at all with stock. At harvest time the wheat was gathered—a good crop of perfect wheat. But the barley was a perfect failure—no barley at all—but a very fine crop of cheat or chess.

Still another example—some of us may call a freak of nature, but, in my opinion, it was law—if the laws of nature were understood and obeyed. My friend and neighbor, John Bear, of Washington township, Marion county, who I can vouch for as a truthful man, tells about breaking up a field, sowing with a good article of timothy seed, for a meadow, and, of course, put it in with care. It came up nice and even, and grew well. However, at harvest time, it was nothing but chess, which he cut and cured into hay. This field was not pastured at all. But the next season, at harvest time, the same field, without any change being made, was all timothy, a good crop, and made him a fine lot of excellent hay.

The pasturing of wheat with sheep has been of great benefit to my flock, particularly my lambs. My best lambs always come in February and March, and when I have no blue grass I invariably turn those ewes on my rankest wheat. I do not have any trouble in my ewes owning their lambs, but the nursing qualities will be increased at once, and so much so that I am obliged to look after the safety of my lambs at once, which I often find gummed up behind, so much so, sometimes,

that, if it be a ewe lamb, it can neither urinate or evacuate its bowels. This dried and hard fecal matter I immediately remove, in the following manner: I lay the lamb on its back, as near as I can, take the tail in my left hand, and pull lightly, but enough to show a little crevice between the wool or skin and integument, with a sharp knife blade in right hand, cut in this crevice, and peel it out, put on a little sweet oil, to prevent sticking again, and your work is done.

Mr. Nixon read the following letter in connection with Dr. Conkle's paper:

ROCK, COWLEY COUNTY, KANSAS, January 2, 1883.

Cyrus T. Nixon:

DEAR SIR—Your favor of the 29th inst. is at hand, and in reply I desire to say, that on the 27th day of November, 1881, I began running my herd of about 400 sheep, on 105 acres of "volunteer" wheat, and continued to pasture them there until March 1, except four or five days when the ground was too soft. After March 1 and until March 20, I pastured the same herd on wheat that had been sown in the fall. The result was, that each piece of wheat yielded twenty-five bushels to the acre when cut. So much for the wheat.

The result of wheat-pasturing for wool I find very satisfactory. One year ago my herd came off of fall pasture very poor, but with wheat pasture during the winter the stock greatly improved, and about the first of June following yielded nine and one-third pounds of wool per head, while the herd belonging to the Holmes boys, being the very same grade of sheep as mine, and coming off the fall pasture fat, but being winter fed with dry feed, sheared only eight pounds to the head.

This winter I am wintering on green wheat, of which I have 200 acres. I am also feeding stalk-fields, that is to say: I herd one hour on the stalks, then move on to the wheat two hours, then corral for noon, then give them the same feed in the afternoon. I have fed my sheep corn and fodder only three times this winter, so far, and then on account of the soft condition of the wheat fields. I expect to shear ten pounds to the head the first of next June. My sheep look splendidly now.

My sheep cost me thirty-six cents per head to winter them last winter, with an increase of three pounds of wool to the head, owing to wheat pasture.

Three years ago, before we had sheep, we had ninety acres of very rank wheat which was not pastured back. In April a severe frost literally ruined my wheat, and we did not cut it; whereas, if it had been pastured down by sheep in January or February, we would have harvested 2,000 bushels.

If I had no sheep I would have my wheat pastured by some one who had, that is, whenever it had a good, rank growth before the middle of March.

Another great benefit to be derived from pasturing wheat with sheep, is, that it keeps the breeding ewes in much better condition for lambing, the green feed making a great flow of milk, which is important for the lambs, and causes the ewes to own and take care of them better. If the ewe's bag is made painfully full, she will seek relief from her lamb and become much attached to it.

I remain, yours very truly,

S. P. STRONG.

DISCUSSION.

S. W. Dungan. I had sixty acres in wheat; one field contained fifteen acres and the other forty-five acres; both fields made a rank and excellent growth. I turned forty-five or fifty head of sheep on the fifteen-acre field; I turned them on in December and kept them on until the first of April. I turned eighty head on the forty-five-acre field, where I should have turned in 200. On the fifteen-acre field they cut the wheat down to the ground. I did not take them off in wet weather. The fifteen-acre field made twenty-six bushels and the forty-five acre field twenty-two bushels to the acre. It was rich bottom land.

Mr. Cotton offered the following resolution:

Resolved, That this Association name three persons, known as practical sheep men, to be recommended to the Board of Agriculture as expert jurors on awards of premiums on sheep at the State fair, subject to the approval of said board.

The Association named Messrs. Darnell, Ritchey and Thompson.

Messrs. Prig, Jordan and Mathews were appointed a committee to prepare a programme for the next annual meeting, which was adopted as follows:

First. President's Address.

Second. Are Full Bloods or Cross Breeds the Better Mutton Sheep for the Common Farmer? by John E. McGauhey.

Third. Selected subject, Robert Mitchell.

Fourth. Selected, A. M. Garland, President United States Wool Growers' Association.

Fifth. Selected, Alexander Hannah.

Sixth. Feeding Sheep for the Market, Morris Howland.

Seventh. Selected, N. D. Gaddy.

Mr. Ridgeway offered the following resolution:

Resolved, That we appreciate the effort that has been made to bring the meetings of the various industrial associations in consecutive order, and we commend the continuation of this arrangement for said meetings.

Adopted.

On motion the Association adjourned to meet immediately after the Short Horn meeting in May, 1883.

INDIANA SWINE BREEDERS' ASSOCIATION.

SEVENTH ANNUAL MEETING.

ROOMS OF THE STATE BOARD OF AGRICULTURE. }
WEDNESDAY, January 31, 1883. }

This Association met, President Dick Jones in the chair, and Wm. A. Macy, Secretary.

Roll being called, nearly all the old members were present, with an attendance of about seventy persons. Thirty-two signed the constitution and paid initiation fee of one dollar each.

LIST OF MEMBERS.

Name.	Post Office.	County.
MILTON EDWARDS	Knightstown	Henry.
W. C. WILLIAMS	Knightstown	Henry.
JOHN A. DEEM	Knightstown	Henry.
W. E. JACKSON	Knightstown	Henry.
I. N. BARKER	Thorntown	Boone.
A. S. GILMORE	Greensburg	Decatur.
H. W. SOMBERT	Columbus	Bartholemew.
JOHNSON & SON	Dunreith	Henry.
I. N. COTTON	Traders' Point	Marion.
MARTIN FENTRESS	Greensboro	Henry.
A. L. FELLOW	Spiceland	Henry.
W. A. MACY	Lewisville	Henry.
OLIVER P. HATFIELD	Lewisville	Henry.
I. W. HARRYMAN	Laudersdale	Henry.
DAVIS & FRAZER	Moreland	Henry.
GATES ROBBINS	Greensburg	Decatur.
ROBERT MELCHITE	Princeton	Gibson.
C. B. JACKSON	Centreville	Wayne.
S. E. HOLLINGSWORTH	Bicknell	
ALLIN GUIM	Kokomo	Howard.
JAMES MUSTARD	Broad Ripple	Marion.
W. T. MANING	Greentown	

LIST OF MEMBERS—Continued.

Name.	Post Office.	County.
FELTING BEELER	Indianapolis	Marion.
J. M. DYE	North Field	
J. C. CLAYPOOL	Rob Roy	
J. W. ROBE	Greencastle	Putnam.
WM. S. SMITH	Zionsville	
D. G. THOMAS	Rushville	Rush.
DICK JONES	Columbus	Bartholemew.
W. H. MORRIS	Indianapolis	Marion.
W. O. REVEAL	Clermont	

President Jones read his address as follows:

Gentlemen of the Convention:

According to custom I feel called upon, as your presiding officer, to indulge in a few thoughts in relation to swine breeding and the real benefits derived from swine breeders' associations.

In the first place, have we made any advancement in pork producing or not? Let us compare the hog of twenty years ago to the hog of the present day, and see if this will answer the question: Twenty years ago we kept our porkers until they were eighteen months or two years old, with a probable weight of 300 pounds and a very *inferior* quality of meat. The hog had to be kept over two winters, and any feeder or breeder who kept a correct account would find his feed cost him more than he realized from his hog. So, of course, little interest was paid to the hog.

But how is it to-day that our improved breeds, kept until ten or twelve months old, will weigh 300 or 350 pounds, and the quality of meat be at least twenty per cent. better than the *old timer*? So, you will readily see, with the improved hog we put him into market with less than one-half the cost of the *scrub*, and have more pounds of pork and a far better quality; but this is not all the advancement the swine breeder has made; he has established a distinct and pure breed of swine—one that can be traced through a line of ancestors just as correctly as can the fine race-horse of Kentucky or the fancy Short Horn, let her be Duchess or under whatever name she may appear, and we are glad to say to you to-day that we are protected from *frauds* and *impostors* by the system of pedigrees and the aid of herd books.

Well do we remember, but a few years ago, the man who bred hogs was considered of very little importance. He raised his *improved pig*, and sometimes had the good luck to sell one for the enormous price of \$10; but there has been some strides in this direction; now we sell them from \$25 to \$45 per head, according to purity of blood, and we imagine we see our Short Horn brother and the breeders of the fine horse looking at us with some degree of friendship.

We do not claim we have advanced the price of pork per pound; that is beyond our control and governed by the laws of supply and demand; but we can furnish a far better quality of pork, and at a much less cost of producing.

Then let us meet together and consult our best interests; in counsel there is strength. This is a noble cause. There is more money derived from the pork-

producing interest than from any other product in the land, and there is still room for improvement. Then let us meet together as co-workers in this great industry. Let all our deliberations be harmonious; let good will prevail, and let each strive for the good of all.

A FEW SUGGESTIONS.

We would suggest that, before this meeting adjourns, a programme be made out for next meeting, the time and place being fixed. Let the programme be arranged so every member will know just what his part may be. We would also suggest that a time be fixed for a meeting of the Executive Committee far enough in advance of next meeting to thoroughly advertise and make all necessary arrangements for such meeting, and that the necessary expenses of said committee be paid from the funds of the Society.

On motion, the address was directed to be spread on the minutes. Points of interest therein were taken up and discussed.

Mr. Beeler, of Marion county, said that some of our grandfathers, and many of our fathers, had to secure their neighbors to help train their hogs for a day or two before they started them to market, on the Ohio river, and gave the following incident, to illustrate the speed of early hog driving: Parties once were driving a lot of hogs to Cincinnati. On their road they overtook a stage that had upset. So the mail was transferred to the hog driver's wagon, which usually followed the drove, with this remarkable compliment: "*You will be in the city before we can get there!*" They were some forty or fifty miles from market when the transfer was made.

In those days, a hog that weighed 200 pounds gross was an extraordinary large hog then, and only brought \$1.25 per 100 pounds gross, one-half being paid in goods, and the remainder in scrip, so as to have something to pay taxes.

Messrs. Edwards, Thomas, Mitchell, Barker, Williams and Harriman spoke on points of interest in the address.

Mr. Robe moved that a committee of three be appointed to prepare a programme for next meeting, and report to-morrow morning. Carried. And the President appointed S. E. Hollingsworth, Knox county; I. N. Barker, Boone county; A. S. Gilmore, Decatur county.

On motion, the President appointed O. W. Reveal, W. E. Jackson and Loyd Mugg to revise the premium list on hogs, after an expression of the association as to how some changes might be made that would be of advantage to exhibitors, and secure a larger display in this department at the State Fair.

Mr. Quick moved that the committee report at the evening session. Carried.

W. E. Jackson, of Knightstown, moved that a committee of three be appointed to consider the advisability of holding a National Swine Breeders' Meeting during the coming summer or winter.

After a full discussion, and all speaking favorable to such meeting, and the advantages derived from the one held in 1872, the motion was carried unanimously, and the President appointed W. E. Jackson, Knightstown, Henry county; I. N. Barker, Thorntown, Boone county; James Mustard, Broad Ripple, Marion county.

Mr. Edwards. In all our show rings where we have premiums offered our breed-

ers show fat hogs; that we have no assurance they will breed except the owner's word for it. We have to show our breeding hogs against that class. Now, the question in my mind is: If we are going to work in the interest of the breeders, are we going to have them compete against fat hogs? This is not only with the yearlings, but other grades, and at the same time they have taken premiums as breeders. Now, I say you should accept them for fat hogs, and for that only. It is not profitable for us to take pigs and raise them up to eighteen months or two years old simply for show hogs; it is not profitable to do this simply for approbation. Every breeder has had such experience as this, and for that reason I offer this resolution and move its adoption, so that we can get the opinion of this convention upon its merits.

WHEREAS, It has been customary to show sows at our fairs as breeders, which have never produced offspring or suckled pigs; and,

WHEREAS, As it is impossible for those which have farrowed and raised a litter of pigs to compete successfully with those who have no evidence of breeding;

Resolved, That it is the sense of this association that sows which have not farrowed and raised a litter of pigs within twelve months prior to time of exhibition, ought to be excluded from the show ring.

After the following discussion the resolution was adopted and directed to be presented before the State Board of Agriculture.

Mr. Thomas. I move to amend Mr. Edwards's resolution so that it may read substantially: No sow shall be accepted that has not raised and suckled pigs during the twelve months previous to the time of showing.

Mr. Deem. I think the resolution, with the amendment proposed by Mr. Thomas, will meet the approbation of this meeting and suit all purposes in this matter. Mr. Thomas's proposition, as I understand it, is to amend this resolution by saying that no sows should be accepted that had not raised and suckled pigs during the twelve months previous to the showing of them. That will cover the whole ground. It will do in the case of a sixteen months' old sow that will have bred, raised and suckled a litter of pigs within twelve months of the time of exhibition. It will cover the case of the yearling sow, if she has pigs at twelve months; say she will farrow in March or April, she can suckle those pigs and be prepared for exhibition the coming fall.

Mr. Johnson. I concur with Mr. Deem in what he has said.

Mr. Quick. I am opposed to this resolution. I am opposed to it for this reason: That I do not think any sow ought to be bred under twelve months old. I think the stock ought to be matured, or very nearly matured, before being bred. I have been trying to raise stock for several years, and I think a sow ten years old will produce a better pig than a sow two years old. My experience is that a man that raises the finest hogs, and exhibits them, raises them from very old sows every time. As for myself, I never think of breeding a sow, where I expect to exhibit, under two years old. Then I get a good hog, and I also have a good breed sow, one that when she has pigs they are up and running about. You will notice, also, the same effect in the breeding of Short Horns. I think this is a great objection to the resolution as now offered.

Mr. Williams. I would like to say here that one of the best, if not the best, hog I ever raised was from a sow that was not yet ten months old.

Mr. Elliot concurred with Mr. Quick in his remarks.

Mr. Macy. I wish to indorse Mr. Quick's opinions in regard to this matter. They are of the same nature as the opinions stated by me, two years ago, in our Association, and I am glad to see others coming to my standpoint on this question.

Mr. Jackson. I have lived over fifty years trying to learn something, and do not know so very much yet, but I do know this: That we have a disease throughout this country which most of us call "hog cholera." It is the worst disease we have in the hog. I have some idea of what causes that "hog cholera," and will say something about it. I think that by breeding your sows under maturity you deteriorate the quality of your hogs, and where this disease is present in the parent sow, it is transmitted to her pigs. When you breed a sow under maturity, you are calling on the vitality of that sow, which it is very evident will harm it.

Mr. Edwards. Men that wanted to show their yearling hogs without breeding them could have a premium for fat hogs, and those that wanted to do otherwise could have a premium for their rings. I believe that good stock ought to be pretty well matured before breeding, but still I think that is an open question. I have raised good hogs by breeding my sows young. I have raised pigs from young sows that I would defy any man to pick out of a lot of one hundred and forty or fifty pigs. I have done that for years and years, and have picked the very best ones from my breed sows. I take the pigs from the young sow and the pigs from an old sow, and with the same treatment the young sow will come up to the others.

Mr. Thomas favored the resolution.

Mr. Macy offered the following resolution, which was carried:

Resolved, That two committees of three each be appointed to prepare, by tomorrow morning, a scale of points for Poland Chinas and Berkshires, by which each class might be judged.

Upon the reading of Mr. Macy's resolution there ensued a lively and interesting debate on the question of how to mark the hogs, which was participated in by Messrs. Macy, Robe, Jackson, Thomas, Beeler, Mitchell and Edwards, mostly favorable to the resolution.

Mr. Williams. I will offer this verbal resolution:

Resolved, That it is the expression and sense of this Swine Breeders' Association that we have, as a committee to judge our hogs, one person instead of three, and that person be an expert.

Mr. Quick moved to amend so as to show that there should be an expert for each class exhibited, which was agreed to, and the resolution as amended was adopted.

Following which, President Jones appointed as a committee to make a scale of points on the Poland Chinas, W. A. Macy, Wm. Williams and D. L. Thomas; and for the Berkshires, A. S. Gilmore, I. N. Barker and C. B. Jackson.

Mr. Beeler moved that "this association shall name and recommend three experts to the State Board of Agriculture from whom to select one to act as expert judge of his particular class of hogs, the association not to be held liable for the employing of such expert." Which motion was carried.

The motion of Mr. Williams, that the chair appoint a committee of three to bring forward the names of three men as experts, from whom the State Board should select the expert for next season, was carried.

Mr. W. E. Jackson. There is a matter that has bothered me not a little, and which I heard discussed by an Ohio association, as to the breeder of a litter of pigs. It is discussed there in several ways, and under several different phases; and as I want to hear expressions from some of the old breeders, for information, I will offer my resolution as follows:

Resolved, That the owner or lessee is the breeder of the offspring.

Mr. Barker. We have always recognized the owner as the breeder of the farrow.

On motion of Mr. Barker, the resolution was adopted.

President Jones. I will state to the association that I am informed that Mr. Morris, who was to have delivered an address this evening, can not be here, but expects to be present to-morrow.

Mr. Mitchell. In regard to the matter of forming a national organization of swine breeders, concerning which there has already been a committee appointed for the purpose of meeting with breeders from other States to consult about the advisability of doing so, I wish to say that I am greatly in favor of holding a national meeting of swine breeders, and I think Indianapolis is the place where it should be held. Indianapolis is most advantageously situated for it, being centrally located, and the people of the State being a great hog raising people; there are, also, the proper facilities for accommodating a large assemblage. It would be a great credit to our Indiana Swine Breeders' Association to have this meeting held here, and I am in favor of authorizing the committee to call a national meeting, to be held here in Indianapolis. And unless we do this soon, some other State will be taking the initiatory step in this matter. I think this association should take this course, and authorize the committee to move in that direction.

President Jones. I think Mr. Mitchell's suggestion is very good.

Mr. W. E. Jackson. While in Ohio, I learned there had already been a national meeting held here, in 1872. But they seemed to think that if they decided to meet here it would be all right. I believe that if this association takes the proper steps in starting the matter, there will be no trouble in securing the meeting here.

Mr. Mitchell. I move that this committee be authorized to make a call for a national convention of swine breeders, to be held at Indianapolis, at a time to be hereafter agreed upon.

Which, upon motion of Mr. Thomas, was adopted.

Mr. Macy here read a communication from Mr. Connor, stating that from press of business he could not address the association.

Following this, Mr. D. L. Thomas, of Rushville, Indiana, read a paper on "Swine Cough," as follows:

SWINE COUGH—ITS NATURE AND ITS REMEDY.

BY D. L. THOMAS, RUSHVILLE.

This is the the most common ailment among swine, and the least understood by hog producers. Farmers and practical breeders are prone to class all swine diseases under the generic term, cholera. When some of them hear their pigs coughing, they say it is a sure forerunner of cholera. And if they use any remedy it is some patent nostrum called "Cholera Remedy." Cough is not a symptom of the so-called cholera. Sometimes it appears in connection with it, but is only incidental. A second class say it is caused by hogs lying in the dust, about barns and sheds—that they inhale dust. This may be the case to some extent. Occasionally it may cause coughing. A third class say cough is caused by lung worms. This may be true in a few cases only. I once had a fine litter of pigs that commenced coughing, and the coughing grew worse. I did not understand it. I happened to notice an article in a newspaper from a Western farmer, who said that the cough is caused by lung worms, and that turpentine would expel the worms. I accepted the theory, and proceeded to give them turpentine in slop, as directed. Several days' treatment did no good. I put one that coughed the worst in a pen, and increased the dose in milk for several days, and the pig died. That is, the cough and my treatment killed it. The remedy was worse than the disease. A *post mortem* examination revealed the entire absence of lung worms. The internal organs were too much inflamed and saturated with medicine to discover the trouble. This led me to enter upon a close investigation of the whole matter, to learn, if possible, the nature and the remedy; and, too, with the most gratifying results.

In December, 1881, I examined the lungs and bronchial tubes of a pig that was slaughtered. It had coughed for three or four months at intervals, sometimes whooping. Otherwise the pig seemed all right, and had a nice coat of hair. The lungs and tubes seemed perfectly healthy; not even the appearance of inflammation. But in a few places in the tubes were small collections of mucus, resembling the nasal discharge when a person has been working about a threshing machine. This was the only thing unusual. Another shoat was slaughtered that had been coughing some for ten days. (These pigs had not slept in dust.) The lungs and pipes appeared to be in excellent condition; not even a sign of mucous secretion. But the nasal lining was inflamed. Evidently these cases failed to confirm either of the three prevailing theories, but rather proved them to be incorrect.

From these circumstances, and careful study of the subject, I was fully convinced that, in a vast majority of cases, cough is the result of cold. Why can't a hog catch cold as easily as a human? Their vital organs are quite similar; likewise the system of circulation. Hence, both are subject to the same influences which produce similar results. Why did we not think of this long ago? When we hear people coughing, we conclude at once they have contracted cold. When we hear brutes cough, we are puzzled to understand it.

Allow me to mention some of the principal causes of swine cough, viz.: 1. Sudden changes in the atmosphere, chilly winds and cold rains are prolific causes. Improved hogs have finer suits of hair than formerly, hence, less protection. 2. Change in sleeping places is another frequent cause. Hogs may contract cold by being changed from very poor to extra good beds. During the war, soldiers used to camping out, returned on furloughs and were put in warm feather beds, and contracted the worst colds they had during their term of service. If swine sleep too warm, coughing is sure to follow. The extreme heat of midsummer often gives pigs severe colds; and hogs do not have the ranges they formerly had.

Breeders and shippers are not unfrequently called upon by customers to explain why their pigs have a cough. Perhaps the former can truthfully say there was no cough when the pig was shipped. Why, then, the cough? The pig had several chances to contract cold. The shipper put it in a box and hauled it in an open wagon to the express office; then it was put out on the sidewalk till train time; then hauled to the depot and exposed awhile; and at the other end of the line it gets similar treatment—is hauled home by the buyer in open vehicle and put in a new bed. Now, if the weather was chilly or cold, the pig could not help contracting cold. It was exposed, and had no chance to stir about and exercise. Think of the result if a man were put through such an ordeal with no overcoat or extra wraps! A horse blanket placed over the pig's crate makes a wonderful difference.

From severe exposure a pig may contract a violent cold, and the lining of the bronchial tubes and lungs become inflamed. Death may result in a few hours. That is pleuro-pneumonia.

Having discovered the cause and nature of swine cough, it remains now for me to give a cure. In all ordinary cases the cough will disappear without treatment. Nature throws off the disease. In more obstinate cases hog powders, which have proven efficacious in my treatment, and also in that of other breeders who have tried them upon my recommendation. So I do not come before this association with a theory or a medicine once tried—do not jump at a conclusion. But I come with a remedy sufficiently tested, I think, to warrant me in recommending it to all hog raisers. From studying the uses of medicines and their effects, I evolved this formula and demonstrated its utility by experimenting with it. This is the formula:

Pulv. licorice, 1 lb; elecampane, 1 lb; black antimony, $\frac{1}{2}$ lb; sulphur, $\frac{1}{2}$ lb; pulv. resin, $\frac{1}{2}$ lb; copperas, $\frac{1}{2}$ lb; asafoetida, $\frac{1}{2}$ lb.

For one pig one teaspoonful in slop twice a day. Pine tar in trough is also a valuable addition. After killing the fine pig mentioned above, by doctoring it for lung worm, I tried this remedy on the remainder of the litter, and cured their cough in one week. And in no case where I have used it has it made a failure.

President Jones here announced that Governor Porter would address the Association on the following morning.

On motion of Mr. Johnson it was agreed that when the Association did adjourn it should adjourn to meet at 7 o'clock in the evening and at 8 o'clock the following morning.

Following, there was a general discussion as to when the National Convention had best be held, but no conclusion was arrived at.

On motion of Mr. Williams the meeting adjourned until 7 o'clock.

Association met at 7 P. M., according to adjournment, with President Jones in the Chair.

The reports of the various committees being called for, they responded as follows:

The committee to propose experts to judge Poland China hogs reported the names of C. W. Jones, Kalamazoo, Michigan; Edward Munger, Bentonville, Indiana; David Finch, Oxford, Ohio.

Signed

W. C. WILLIAMS,

Chairman of Committee.

Adopted.

The committee to propose experts to judge Berkshires reported the names of D. W. Todd, Urbana, Ohio; Jacob Kennedy, Litztown, Indiana; Osborn Barnard, Bloomington, Illinois.

I. N. BARKER,

Chairman of Committee.

Adopted.

The committee on a scale of points by which to judge Berkshires, reported as follows:

SCALE OF POINTS FOR BERKSHIRE.

- Head, 8.
- Ears, 6.
- Neck, 7.
- Shoulders, 10.
- Back, 12.
- Body, 12.
- Loin and Flank, 10.
- Hams, 15.
- Tail, 4.
- Legs and Feet, 12.
- Hair, 4.

I. N. BARKER,

C. B. JACKSON,

A. S. GILMOUR,

Committee.

The Committee on Scale of Points, by which to judge Poland Chinas, reported as follows:

- Head, 8. {
 - Nose, 2—Neat and pointed.
 - Ear, 3—Drooping and pointing forward.
 - Jowl, 3—Heavy and well joined to brisket.
- Neck, 4—Short and well arched.
- Shoulder, 10—Wide and deep.
- Chest, 12—Full.
- Back, 12—Straight or arched, with ribs well sprung.
- Sides, 12—Long and deep.
- Loin, 10—In line with sides and hams.

Flank, 3—Well down.

Hams, 14—Long, broad and full.

Limbs, 10—Good bone and standing straight.

General Appearance, 5—Hair, style and action.

WILLIAM A. MACY,

W. C. WILLIAMS,

D. L. THOMAS,

Committee.

Mr. W. E. Jackson, as Chairman, made the following report in behalf of the Committee on Premium List:

Inasmuch as the swine interests is one of great importance to the farmers of Indiana, we think such interests might be furthered by securing, at the hands of the State Board of Agriculture, an increase of twenty per cent. on premiums, excepting Books 26 and 27. That after the sentence: "Sows one year and under two," be inserted the words "which has raised a litter of pigs during the preceding twelve months."

On motion of Mr. Mitchell the report was adopted.

President Jones announced the inability of Mr. S. M. Shepard to be present to address the association.

Mr. Williams. Mr. Thomas was giving us a remedy for coughing hogs this afternoon which caused me to think that I had a little experience in that line last fall to relate you. I hired a stock car and came in to the State Fair. I started with my hogs from Knightstown. They were very mild-mannered stock—extremely well behaved hogs—and when I got here, at night, I drove them through the streets to the fair grounds. They took cold and coughed a good deal when I got out there. It gave me the "blues." One got to coughing so badly that I put it in a box and expressed it home, and I gave it coal oil and milk, and it was well in two days. During the fair there were two or three others coughing, and when I gave it coal oil some said it would kill it, but it cured it. And another time, at Greencastle, I gave a hog that was coughing badly some coal oil and milk and covered it with straw, and before we got out of the State it did not cough another time. This is a little of my experience, and I would like to know if anybody else has had any similar experience or not.

Mr. Edwards. I have had some little experience with coughing hogs and have tried different experiments. At one time I gave them pine tar in their slop and they quit coughing; whether that was the cause or not I could not say. Again, this summer they had quite a severe cough and I gave them a small portion of coal oil in their slop for three or four days, and they quit coughing. I can not say that the coal oil did it, but I suppose it was the cause of it. These are two remedies I have tried, and I think successfully.

Mr. Sunman. I would like to know what quantity of coal oil you use.

Mr. Williams. I give about a teaspoonful at first, and pour it in as they get their mouths ready to drink it. If you pour it in, and let it come to the top, they will refuse it.

Mr. Edwards. I give about a teaspoonful.

Mr. I. N. Barker offered the following resolution, which was adopted :

Resolved, That it is the sense of this Convention that all hogs competing for premiums shall either be registered, or the first descendants registered animals—in all breeds that have established registers.

DISCUSSION.

Mr. Mitchell. The registry question is a subject about which I desire some information. I would like to know what register is to be recognized as the standard one, and how many we have. There should be something done at this State meeting in regard to doing away with so many registers, so that we might have one that could be depended upon as authentic. How is the Indiana register to be relied upon? There is one register in Ohio, one in Illinois, and one in Iowa; now which one is to be regarded as correct? Each State has its own register, and are they good outside each respective State? That is one point that the Convention should take some action upon. The American Herd Book is now the property of the Short Horn breeders, and is copyrighted. Every pedigree that goes in there can be relied upon. If that is good for the breeders of Short Horns, it is certainly good for breeders of hogs. Now the breeders of Berkshires could come together and make a national register for Berkshires, while the breeders of Poland Chinas could make a national one for Poland Chinas, and this is something I know you will do, if there is any value in a pedigree. Are those State registers worth anything? That is a question I would like to see settled. If there can be any good in a national convention, this is one of the most important questions that can be settled by it. It is not necessary for the breeders of Berkshires and the breeders of Poland Chinas to antagonize each other. They can meet and have a register for all their hogs. I think some action should be taken by this Convention towards making a register that could be relied upon.

President Jones. That has been worked upon for two years, and there are several committees at work on it now. They are to meet and consult about making a national register. The committees are from this and other State associations. They are at the work now.

Mr. Mitchell. That is for Poland Chinas?

President Jones. Yes, sir.

Mr. Barker. The Berkshires have one also.

Mr. Edwards approved of what the gentleman had said about the registry question in favor of it, and expressed the belief that the day was not far distant when the breeders would have the advantages incident to a recognized National Register.

Mr. Mitchell. Are any of the State Registers copyrighted?

Mr. Macy. I believe the Ohio Register is copyrighted.

Mr. Barker. I think the American is, and that this question will be raised in the National Convention, as Mr. Mitchell suggested. I think this scale of points will be another question brought up before the National Convention. This scale we have prepared to-night for the Berkshires will be, no doubt, modified by the National Convention. Then the different States will adopt it and we, for the Berkshires, will adopt that scale of points after they have modified it, and then it will be uniform in all the States.

The motion of Mr. Quick to reconsider Mr. Barker's resolution, for the purpose of furnishing an opportunity for certain members to discuss it who had not yet had a chance to speak concerning it, was carried.

Mr. Nelson favored the resolution, and thought it would be beneficial to have only pure breeds exhibited at the fairs.

Dr. Gadding thought that the resolution intended the stopping of the exhibition of cross breeds at the fairs, and dropped the remark that the Poland China was a cross bred hog, whereupon Mr. W. E. Jackson sprang to his feet to refute the charges made against his favorite breed of hogs. Then ensued a very lively discussion as to what made a pure breed, and in what class could a pig be shown which was the result of a union between a pure bred Poland China sow and a pure bred Berkshire boar, or a pure bred Berkshire sow and a pure bred Poland China boar, which questions were settled by being left unsettled.

Upon motion of Mr. Williams, the resolution was again adopted.

Mr. Mitchell. I would like to get some information from any gentlemen who have had any experience in feeding cooked corn, as to what has been the result of their experiments.

President Jones. I invested about \$25 in a cooking apparatus, and fed cooked corn to Poland China pigs as an experiment. I have never fed cooked corn since. It came very near ruining my litter of pigs.

Mr. Mustard. In all the remarks that have been made here tending toward breeding hogs, nothing is said about feeding them. I have a question to ask the convention, as to what kind of food ought to be fed hogs, when to feed it, and what effect the condition of the stock has on it? For instance, take a sow and boar that have been coupled, how ought that sow be fed, and where ought she to be kept? Can any man here, as a breeder, answer that question? It is well known that you can feed a hog until the pigs will be weak, and the hog's vitality will run down. If you do not feed a hog muscle-making food it will become weak. I would like to hear these questions discussed. I think they are very important. There is another question about the kind of food that should be fed to a hog. I know of a case where the pigs were not given any corn, and they every one died. Now, if the breeder had fed those sows some corn and slop mixed up, he would not have had any trouble. If you will take a bucket and put about a pint of bran in it, and mix it so that it is just wet, and feed that about two or three times a week, you will never have a weak litter of pigs, unless the boar is in a weak condition.

Mr. Johnson. That suggests a question about which we have had some little sad experience. When a sow has her pigs after night, there being no attendant by to see that they are all right, some of them crawl off and die before they get to suck any. Perhaps Mr. Mustard, or some other member of the association can give some remedy for that.

President Jones. I would say that that pig would die anyhow.

Mr. Williams. I will have to take exception to that. I differ with President Jones on that subject.

Mr. W. E. Jackson thought that the crawling of the pig was due, in a great

measure, to the condition of the mother pig in farrowing; and that if the sow would let herself known, so that the pig could know where she was, it would crawl back to her.

Mr. Mustard. I have have had some little experience in that, and my observation is, and always has been, that whenever I had a sow that farrowed I found she was costive. I venture to say that if you have a pig that crawls away, you will find that the sow is costive. It takes the fever, and the pig does not get sufficient milk. That has been my experience in breeding; but whenever the sow is in good condition and had no fever, I never had any trouble. If I had a sow that was inclined to be costive, I took the corn away from her.

Mr. Barker. Two years ago this winter I fed my hogs turnips.

Mr. Mitchell. Did you cook them?

Mr. Barker. No, I feed them raw. Sugar beets I think a great deal of, but turnips are a great deal easier cultivated. I fed them regularly three times a week.

Mr. Mustard. I want to make just one remark. What Mr. Barker said is correct.

Mr. Macy. There is one thing that the farmers ought to raise—and it is simple enough—artichokes. You have no idea of their value until you have tried them. They are easily raised, and will produce from 200 to 1,000 bushels per acre. It matters not whether you take the Jerusalem artichoke, which is red, or the white artichoke.

Mr. Edwards. I agree with Mr. Mustard in regard to slop for hogs. We mix in part bran and oats. We give our sows plenty of slop. I would recommend plenty of bran and slop for hogs.

Mr. Slothum. In regard to those artichokes. Do you ever, in preserving them for winter use, keep them in the ground, or can you do that?

Mr. Macy. You can do that, or you can put them in a pile and cover them a little. They will not be hurt if they are on the ground, but if frozen when on a board, it will hurt them. Or you may keep them in the cellar.

Mr. Slothum. Will they keep during the winter?

Mr. Macy. Yes, sir. I will also say that cattle will eat them, and that horses will eat them.

Mr. Cooper. I would like to ask some of the older breeders present, as to what their experience has been in regard to letting their pigs run with cattle. What effect has it upon them?

Mr. Williams. I am not an old breeder, but I would not like to risk my brood sows with cattle.

Mr. Barker. I have always let mine run with them. I have never had one hurt.

Mr. Nelson indorsed Mr. Barker's remarks.

Mr. Johnson. Speaking of cheap food. I think we have been using the cheapest food of all this winter. That is, beach mast. It has not taken one-half the corn, and has kept our breeding sows in fine condition. We never had sows to do better. Of course they got some roots besides the mast.

Mr. W. E. Jackson. I would like to know how many acres of woodland the gentleman allows to the hog.

Mr. Johnson. We just put the hogs in in a drove, and do not allow each a separate kingdom.

Mr. Cotton. I have four sows on forty acres, and they have done very well.

Dr. Gadding. I would like to have that matter discussed a little more freely. I have been afraid to let my sows feed on the mast, on account of disease.

Mr. Mustard. I have had some experience in that, and my observation is this, that hogs that run on mast become costive, and I never liked it. If I have fine hogs I am very careful of letting them run where they can not get plenty of mast. I will say to Mr. Johnson that if he will watch the dregs of those hogs, he will find that nearly every one of them are costive. Did you never see a hog with cholera, and see the droppings? I do not like mast without bran feed also. You can put in plenty of bran when you feed, and it wont hurt if you put in a little turpentine. Some of them put in coal oil for a cough. I will tell what will cure that. If you have a hog with a cough, use turpentine and lard, and it will cure it.

Mr. Mitchel. How do you do that?

Mr. Mustard. Make the lard hot and pour it in milk and have it warm. Now the last idea in a hog is that of being refined, and they will drink anything. I pour the milk down, and while they are drinking it, I pour the turpentine in it.

Mr. Slothum. How much turpentine do you use?

Mr. Mustard. About a table-spoonful to a dose, and I never had to give more than one dose.

Mr. W. E. Jackson. In addition to what has been said on the mast question, I have never seen a piece of woods where there was mast without there being more or less acorns. I think they are very injurious, and the hogs will eat them in preference to hunting for the other nuts, because they are easier found. I think it is more difficult to keep them off of the acorns than to feed them in the first place.

Mr. Dye. My experience with hogs running on beech nuts is something similar to Mr. Mustard's. They get costive. But my experience in using turpentine for cough is entirely different from his. Two years ago my hogs took a severe cough. I took some of Dr. Cline's cholera cure—he persuaded me to try some of his medicine. I tried the medicine, and they coughed like they would cough their heads off, and I fed them turpentine and they coughed worse, until they died.

Mr. Mustard. In addition to the turpentine did you use lard?

Mr. Dye. No, sir, I did not.

Mr. Mustard. I would recommend you to use lard with the turpentine.

Mr. Mugg. I have not had the experience that most of the breeders present have had. They are older than I, and have bred many more hogs. I have shown hogs for eleven years. You will find that hardly any two men agree upon what care should be given to breeding animals. Now, I will say some things which you will probably think a little strange, but I could prove them if necessary. We have raised a good number of pigs. I have never had a foot of clover land to let my hogs on. I have had a little blue grass pasture, but not much. I raised my spring pigs, between sixty and seventy, from seven sows. I have sold a good number of pigs. On my place I have forty acres of my own, and I have timber land that I let my hogs run in. There is some mast there. In regard to costiveness, you will always find it when the hogs feed on acorn mast. Friend Mustard speaks of the

great curative qualities of turpentine and lard. I am not a believer in turpentin. It is liable to injure brood sows somewhat. You will find that some farmers use copperas. It is impossible to do anything with copperas unless you handle it just exactly right. You are liable to injure the hog with the copperas. Of course from so many ideas we are sure to get some good information.

Mr. Williams. Copperas was my great remedy—all the remedy I have, in fact. I take the copperas and give it in slop. If any one has a better remedy, I want to know it.

Mr. Thomas. In regard to hogs feeding on mast, it makes them have a greater tendency toward having worms.

Dr. Gadding. There are worms in all the inferior animals, as well as the superior. For instance, the *tarnia*, or tape worm. Hogs are greatly affected with them. I recollect of having some hogs that had the tape worm. The pig is very liable to the tape worm. If you have a marshy piece on your farm, where the hogs wallow, and where they can deposit the *larva*, or *ova*, of the *tarnia*, this *larva* the sheep will eat and the hog will eat, and it will be developed into the worm. There is one species of the *tarnia* called the *tenia*, which the sheep is especially subject to. The *larva* being taken into the stomach, gets into the blood, and is washed around through the system into the brain, and there it remains, and there is nothing to be done to remove it. Now, as to this disease called cholera, I think it is more of a fever—a swine fever—than anything else, and it may be compared to pneumonia, or inflammation of the lungs, or inflammation of the bronchia, or inflammation of the laryngitis, or of the larynx, or of the pleura, or of the stomach, or of the bowels. I think whenever a hog dies of cholera, it should be burned or buried. I believe there is a law in some State requiring people to bury animals—all animals—regardless of what they died, and I think there ought, also, to be a law here requiring them to be burned. In regard to this cough or cold, hogs, like everything else, are liable to nasal catarrh. It may be the larynx or lungs affected, or it may be pharyngitis, or laryngitis, the bronchia, or bronchitis, or it may be pneumonia, or it may extend to the pleura. It is just simply a severe cold. Keep your hogs comfortable. They are cold as well as you. You require heat; give them an even temperature, and it don't matter so much about the food, just so you give them plenty of it. Give them corn and other food. I am somewhat surprised at the course the discussion has taken with regard to the feeding of mast. I have a woods pasture, principally white oak, yet I did not hesitate to turn my hogs in it; but I furnish them plenty of slop; give them little corn and give them plenty of slop to regulate their bowels. The beach mast I have plenty of, but I did not turn my hogs in it. My experience with it makes me fear it, because of the worms that haunt it.

Mr. Johnson. We have very few oak in our woods, and what few acorns our hogs got I do not think ever hurt them. I know that we never had hogs to do better. In regard to cooked corn, we have had one season's experience in that. We first started to having the corn ground and then cooking it. I never saw pigs eat anything with greater relish than that, and they did well. With the exception of the refuse pieces of cob, they would eat it all up clean.

President Jones. I have had some experience with hog cholera this winter. I

have danced to the tune of about fifty-four good hogs. Those hogs were taken to a tank factory in Columbus, owned by a Mr. Smith. Inside and around that tank he had forty hogs, and he never had lost a hog with cholera. They say that hogs should be near to running water. My hogs have access to three miles of Flat Rock Creek, and I have had two visits from cholera. The theory is that there was something in this water that the hogs drank. Dr. Dickson lives in Indianapolis. If you do not know who Dr. Dickson is, he is a veterinary surgeon. He makes a specialty of hog cholera. He was at my house a few weeks before my hogs were taken sick. In about two weeks my hogs were taken with the cholera, and I sent word to the doctor and he came immediately. I had at that time about twenty-six hogs sick, and he placed them in the hog house, and before he got through all the fifty-six hogs were taken sick, and out of those fifty-six hogs he cured every one except fifty-four. There was two hogs left. Every well hog that I gave his medicine to died. Now, if you want your hogs doctored, I refer you to Dr. Dickson, of Indianapolis.

Mr. Heron offered the following resolution:

Resolved, That the Secretary of this association be instructed to procure a suitable indexed record book for the purpose of collecting the names and addresses of all the persons in the State showing a special interest in swine breeding, and each member of the association be assigned certain counties or districts to collect such names and send to the Secretary; that previous to the next meeting a circular be prepared setting forth the objects of this association, which, in connection with the programme, be sent to each address so recorded.

On motion of W. E. Jackson to have a committee to report on Mr. Heron's resolution, the President appointed the following committee: W. E. Jackson, Robert Mitchell and S. R. Quick.

On motion of Mr. Claypool, the meeting adjourned until 8:30 A. M.

FEBRUARY 1, 8:30 A. M.

Association called to order by President Jones, with a full attendance.

The Secretary offered the following final report of Treasurer James Mustard:

Received up to 1880	\$60 50
Disbursements to same date	20 60

Balance in favor of Society	\$39 90
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The Treasurer made the following report:

Received of Wm. A. Macy, members' fees	\$10 00
Received of James Mustard	39 90

Total	\$49 90
Paid Wm. A. Macy, on order of the President	1 50

Balance	\$48 40
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D. L. THOMAS, Treasurer.

On motion, the reports were accepted.

Committee on Programmes made the following report, which, on motion, was adopted:

Annual address of the President and other officials.

Characteristics of Berkshires, and Managing of Herd—A. S. Gilmore, Greensburg, Indiana.

Characteristics of Poland Chinas—Dick Jones, Columbus, Indiana.

Characteristics of Chester Whites—S. H. Todd.

Characteristics of Jersey Reds—Emsley Wright, New Augusta, Indiana.

Essex Hogs—W. W. Wiley, New Augusta, Indiana.

Victoria Hogs—George F. Davis.

Winter Management of Breeding Hogs—James Mustard, Broad Ripple, Ind.

Best Mode of Preparing Hogs for the Show-ring without Injuring their Breeding Quality—Wm. C. Williams, Knightstown, Ind.

Advantage Derived from Using only Thoroughbreds for Breeders, and Disadvantages of Using Cross-breeds for Breeders—Robert Mitchell, Princeton, Ind.

Future Outlook for Professional Breeders of Thoroughbred Hogs—Jas. M. Dye.

Diseases of Swine—D. L. Thomas, Rushville, Ind.

Care of Brood Sows and their Litters—W. E. Jackson, Knightstown, Ind.

Most Profitable Mode of Feeding Hogs for the Butcher, age considered—Sates Robbins.

I. N. BARKER,

Chairman of Committee.

Your committee, to whom was referred the resolution of Mr. Heron, have had the same under consideration, and would recommend its adoption by this convention.

W. E. JACKSON,

Chairman.

Adopted.

On motion, the Secretary was directed to buy a suitable book for recording addresses, and make appointments, as represented in the resolution, and appoint one in each county.

On motion, the association went into the election of officers, which resulted as follows:

President—Dick Jones, Columbus, Ind.

Vice President—D. L. Thomas, Rushville, Ind.

Secretary—Wm. A. Macy, Lewisville, Ind.

Treasurer—I. N. Barker, Thorntown, Ind.

Executive Committee—W. E. Jackson, Knightstown, Ind.; James Mustard, Broad Ripple, Ind.; I. N. Barker, Thornton, Ind.

Mr. Williams offered the following:

WHEREAS, The Indiana State Fair is the only fair that requires five sows in a herd.

Resolved, That we ask the State Board of Agriculture to make four sows and one boar the herd hereafter.

Adopted.

Mr. Gilmour offered the following:

Resolved, That this association ask the State Board of Agriculture to incorporate in their rules, a rule requiring exhibitors of herds of hogs to be the *bona fide* owner of the herd and to be so certified by affidavit.

Adopted.

Mr. Mitchell. I move that the secretary of this association be empowered to pre-

pare and present all matters that are intended for the information of the State Board of Agriculture, in regard to Swine Breeders, that have been acted upon in this meeting.

Which motion was carried.

Mr. Deem. There is a bill before the Legislature which contemplates the appropriating of money to certain organizations of like character with ours, for the purpose of defraying the incidental expenses of such associations; therefore I offer the following resolution:

Resolved, That a committee of three be appointed to act in concert with like committees of similar organizations, for the purpose of securing a legislative appropriation for liquidating the expenses of such associations.

Mr. Mitchell. That resolution, as I understand it, contemplates the appointing of a committee from this body whose duty it shall be to "lobby" with the members of the Legislature, which is a very disagreeable job. There are a number of State associations, and with a committee of three from each association, it would make quite a formidable body. And that is the way the Legislature is generally reached. This money to be appropriated for the State association comes from the people, and the State Associations are formed from the tax-payers of the State, and if any associations need assistance and are worthy of such assistance, it would certainly be such as these. *Mr. Deem* can do more than anybody else, being a member of the Legislature himself, to press it to a conclusion. If the bill suits him, I do not think it can be helped by a committee. There are many objections to appointing a committee to "lobby" with the Legislature. While this lobbying continues they are lobbying for everything, and they finally become objectionable, and then when they approach a legislator for his consent to their appropriation, he rather shuns them. I think if *Mr. Deem* would take an interest in the bill, it would give it a great deal of influence, and if this convention will indorse him in some way, then he will go before the Legislature fully authorized to work.

Mr. Deem. The resolution does not contemplate any lobbying except in this way. That when the committee has been appointed, they will act with the committees from the Wool Growers and other associations, and prepare an address and resolutions to the Legislature.

Mr. Barker. The poultry breeders and cattle dealers associations have already appointed a general committee to do this work, and have instructed the committee to work with committees from any of the State associations. We do not anticipate any lobbying. We never thought of any. I do not think the gentleman need be uneasy about this.

Mr. Mitchell. Have you done anything yet?

Mr. Barker. It was left in the hands of Col. Gray. I believe one State association has had legislative aid for eight or ten years—that is the Horticultural Association. They went to work and asked for it, and they got it. Unless we ask for it, it is evident we will not get it.

Resolution adopted.

The President appointed the following members a committee to act under *Mr. Deem's* resolution: Messrs. Robert Mitchell, of Princeton, I. N. Barker, of Throntown, and Thomas Nelson, of Parke county.

At 10 A. M. President Jones introduced Governor Albert G. Porter, who addressed the association, after which he asked quite a number of leading questions that were of interest.

GOVERNOR PORTER'S ADDRESS.

In a brief address upon the consumption and production of pork, Governor Porter said:

The use of pork, if we may judge at all from the demand for the American product, must be greatly increasing. In 1870 99,500,000 pounds only were exported from the United States; in 1880 the quantity exported was 1,230,702,000 pounds. The export was twelve and a half times greater in 1880 than in 1870. This new demand has greatly increased the profits of swine raising. Indiana stands fourth among the States in the number of hogs produced. The number of hogs in Illinois in 1880, according to the United States census, was 3,202,000; in Iowa, 2,778,400; in Missouri, 2,620,000, and in Indiana, 2,186,000. But the territorial area of Indiana is much less than any of these three other States. In proportion to her territorial area she produced, according to said census, more than any of the States—the product having been sixty-two hogs to the square mile in Indiana, and fifty-seven to the square mile in Illinois. Indiana being thus, in proportion to territory, the leading swine-producing State, it is well that she should have swine-breeders' associations to consider how to improve the breeds of her swine, how to prevent diseases among them, and how to make them yield the greatest profit.

The profit added by improvement of breed alone is strongly illustrated in the case of Massachusetts. I find by her agricultural reports that in 1845 there were in the State 104,740 swine. These were appraised at \$917,435. In 1875 there were but 82,255 swine, being 22,485 less than in 1845, yet these swine were valued at \$963,321. The reports ascribe the great increase in value to superiority in the breeds. To insure the required superiority of breed, regard must always be had to a power in the breed of always transmitting its best qualities, and to the production of hogs that will always come forward and can be fattened early, so as to save food and reduce the length of time to which they may be exposed to disease. The old practice, when breeds were inferior, was to slaughter at about eighteen months old; the new, with superior breeds, at about nine.

The Governor referred to the increase of profit arising from a better and more intelligent care of swine; from the use in commerce of many parts of the swine which until lately had been treated as valueless; and upon the progress made in preventing and mitigating diseases among swine by diligently watching the conditions which exist where the diseases prevail; and he congratulated the association upon the zeal and spirit with which they were conducting their business.

A general discussion upon the remarks of the Governor followed, at the conclusion of which the association adjourned to meet in this city on Tuesday, February 4, 1884.

On motion the association returned thanks to the *Indiana Farmer, Swine Breeders' Journal*, the *Journal*, *Times*, *Sentinel* and *News* for the reports of the proceedings of this convention.

Similar motion extended to Mr. Lathan, of the *Farmers' Review*, Chicago.

Adjourned.

DICK JONES, President.

WM. MACY, Secretary.

INDIANA POULTRY ASSOCIATION.

Constitution and By-Laws, Names of Members, Exhibition of Poultry, at the State Fair in 1882. Annual Meeting of the Indiana Poultry Association, and

ADDRESS OF A. M. HALSTEAD, Esq., of Bye, New York.

RAPID PROGRESS, BOTH PRACTICAL AND SCIENTIFIC, HAS BEEN MADE IN THE BREEDING AND MANAGEMENT OF POULTRY, AND ALL KINDRED BRANCHES OF SMALL ANIMALS, PETS, ETC.

CONSTITUTION.

ARTICLE I.

Name and Objects.

SECTION 1. This organization shall be known as the INDIANA POULTRY ASSOCIATION.

SEC. 2. Its object shall be to encourage the interest and promote the improvement in the breeding and management of Poultry, Pigeons and Pet Stock, and to hold exhibitions in the city of Indianapolis, at such times as shall be designated by a majority of the members present at a regular meeting of the Association.

ARTICLE II.

Officers.

SECTION 1. The officers of this Association shall consist of a President, eight Vice Presidents, a Secretary, who shall also act as Treasurer, and an Executive Committee of three, with the President and Secretary members *ex-officio*.

SEC. 2. The officers are to be elected by a majority of all the votes cast at the annual meeting, and are to serve one year, or until their successors are elected and qualified. Vacancies occurring during the interim are to be filled by the Executive Committee.

ARTICLE III.

Membership.

SECTION 1. All applicants for membership shall be recommended by three or more members of the Association, to be balloted on separately, after the payment of an initiation fee of ten dollars, and upon receiving a majority of the votes of all the members present at any meeting of the Association, shall be received.

ARTICLE IV.

Meetings.

SECTION 1. The annual meeting and election of officers of this Association shall be held during the time of the exhibition. Ten days notice shall be given to each member as to time and place.

ARTICLE V.

Amendments.

SECTION 1. Any amendment to, alteration or repeal of the Constitution and By-Laws of this Association must be presented to the Executive Committee in writing, who will present the same at any meeting of the Association, and upon receiving a two-thirds majority of the votes of all the members present, shall be adopted.

ARTICLE VI.

Assessments.

SECTION 1. The Association may assess each member *pro rata*, to make up any deficiency.

SEC. 2. Upon any member failing to pay his assessment, or upon being charged with wilful misrepresentation, or dishonest or unfair dealing in connection with the poultry interests, or with any other conduct derogatory to the standing of the Association, the Executive Committee shall examine into the matter, and if it shall find the charges sustained, expel the offender.

BY-LAWS.

ARTICLE I.

The President shall preside at all the meetings of the Association, appoint special committees, call extra meetings at the request of three or more members of the Executive Committee, and exercise the usual functions of the presiding officer of a deliberative body.

ARTICLE II.

In case of the absence of the President, or his inability to act, the Vice President shall act as the presiding officer.

ARTICLE III.

The Secretary and Treasurer shall conduct the general correspondence of the Association, and have custody of the same; he shall preserve all important letters received, and keep a letter-book copy of the answers thereto; distribute notices of meetings of the Association; keep the minutes of all meetings, and have charge of the books and papers appertaining to his office; he shall promptly notify all members of their election; he shall collect all moneys for membership fees; he shall have charge of all the funds belonging to the Association, and shall pay bills after they have been approved by the President; he shall keep his accounts in proper form for inspection of the Executive Committee; he shall make a report, at any regular meeting, of all receipts and expenditures, and shall give bonds in such sum as the Executive Committee shall decide upon.

ARTICLE IV.

The Executive Committee will hold special meetings, at the call of three or more of its members, three of whom shall constitute a quorum. It shall control the affairs and property of the Association at all times, and attend to all printing; give publicity to and secure suitable accommodations for public exhibitions, keep a record of all its transactions, and report the same at any meeting of the Association, when called upon.

ARTICLE V.

The order of business of this Association at all meetings shall be as follows:

Reading the minutes of last meeting.

Addresses and reports of officers.

Reports of committees.

Unfinished business.

New business.

Election of officers.

Discussions.

Adjournment.

NAMES OF MEMBERS.

W. F. CHRISTIAN	Indianapolis, Ind.
E. G. BAGLEY	Indianapolis, Ind.
T. W. POTTAGE	Indianapolis, Ind.
H. C. G. BALS	Indianapolis, Ind.
DR. W. J. ELSTON	Indianapolis, Ind.
D. H. JENKINS	Indianapolis, Ind.
W. T. FENTON	Indianapolis, Ind.
JOSEPH POOL	Greensburg, Ind.
I. N. BARKER	Thorntown, Ind.
R. M. ROSENCRANS	Hope, Ind.
J. W. SPEARS	Alert, Ind.
W. H. FRY	Indianapolis, Ind.
A. C. FICKLIN	Charleston, Ill.
C. H. JOHNSON	Fowler, Ind.
S. F. CARTER	Fowler, Ind.

EXHIBITION OF POULTRY AT THE STATE FAIR IN 1882.

The Poultry Association was solicited by the Secretary of the State Board of Agriculture to co-operate with the Superintendent of the Poultry Department in making arrangements for the poultry exhibit. The exhibition proved to be unusually large and interesting.

Exhibition coops were furnished by the Poultry Association to the number of five hundred. Besides these coops, a number of entries were exhibited in coops belonging to exhibitors. Indiana has now such a high reputation in the line of fine poultry, the premiums awarded by the Indiana State Fair are highly prized, and winners do not fail to advertise this fact when they have birds or eggs for sale, it being generally conceded that Indiana is the leading Western State in breeding high class and premium poultry.

As regards the show of 1883, in point of quantity and quality, it has had but few equals; and certainly no show ever given by our association has ranked so high, in point of quality of birds, as this one. All the classes were well represented, especially the Cochin class. The display of Buffs was certainly the most magnificent ever seen in America; it included a number of imported fowls, which, however, won only inferior prizes. It is a significant fact, that imported fowls seldom score up to our home-bred birds. The display of Black Cochins was also very fine. Of White Cochins and Partridge, the display was not quite so large as on one previous occasion, yet the birds shown were exceptionally good. Light Brahmas were largely represented, and among them a number of very high scoring birds. The small varieties were also numerously represented, all the winners being birds of exceptional good quality. The President's cup was won by a white-created Black Polish hen, scoring 97½. We noted also the extraordinary display of Black and Mottled Javas. These fowls seem to grow more popular every year, as they deserve to do. The display of Turkeys was the best the association has ever had, the birds being simply magnificent in color or proportions.

The attendance was good, though by no means what the association has a right to expect, considering the trouble and expense it is at in making what its shows always are, the greatest of their kind in this country. The premiums, as usual, were paid at the close of the show.

The association has reason once more to congratulate itself upon the success of its exhibition, upon the prestige it has gained, and the standing it has made for itself, when compared with other associations of the kind. We are proud to feel that we stand at the head of the State Poultry Associations of America, and shall endeavor, by liberal and conscientious dealing, to remain so.

The yearly meeting of the Indiana Poultry Association, for the election of officers, etc., was held at the office of the Secretary, in Masonic Hall, on the evening of January 9. The meeting was fully attended.

The Secretary made a report of the show, which was necessarily incomplete, though most encouraging.

Mr. Thompson, President of the Dairymen's Association, was introduced, and presented the matter of asking the Legislature for an appropriation for the benefit of all the different State Associations. The matter has its origin in the fact that the Horticultural Society is now, and has been for a number of years past, drawing from the State the sum of \$500 for its sole use and benefit. It is argued that the other State Associations are of equal importance, at least, and of as much benefit to the State at large, and, therefore, as well entitled to such assistance as the Horticultural Society.

The question was ably discussed at some length by Mr. Thompson, and upon this the Association appointed a committee to act in conjunction with a like committee of the Dairymen's, for the purpose of making an organized effort to secure from the Legislature such an appropriation as the necessities of the different associations might demand.

The election of officers followed, and resulted as follows:

President—H. C. G. Bals.

Secretary and Treasurer—D. H. Jenkins.

Vice President—Jas. Pool.

Executive Committee—R. W. Rosencrans, C. H. Johnson, T. W. Pottage.

The public meeting of the Indiana Poultry Association was held in the rooms of the Indiana State Board of Agriculture. The programme of the evening was the address of Mr. A. M. Halstead, of Rye, New York. Subject: "Poultry Raising by Natural and Artificial Means." The address will need no comment, as it is given in full below. After the address followed a discussion of the subject by a number of prominent breeders present. This being the first public meeting the association has ever held, it might be well to state that it proved a most pleasant and instructive one, and although there were comparatively few people present, all who were, congratulated themselves upon having been present. It is the intention to hold each year such a meeting, at which subjects interesting to poultry breeders, especially—and to all persons interested in agricultural pursuits—will be brought up and discussed, and it is therefore desired that all so interested will make it a point to attend.

POULTRY BREEDING BY NATURAL AND ARTIFICIAL MEANS.

BY A. M. HALSTEAD, ESQ., OF RYE, N. Y.

Delivered before the Indiana State Poultry Association, at Indianapolis, January 8, 1883, in the Agricultural Rooms.

Doubtless my subject seems one of minor importance to a large proportion of my audience this evening, but I hope before leaving it to impress upon you the fact that it is one of more than secondary interest in the products of our country. One, the products of which, if taken out from among us, placed among the luxuries, attainable only by those of unstinted means, would leave many of us deploring the loss of one of the necessities of life, which we did not fully appreciate until it was beyond our reach.

I know many are wont to think and speak of "the chicken business" as of small importance, and refer to it in a contemptuous manner, as if beneath the attention of thinking and intelligent persons. Quite lately I heard it referred to: "Oh, yes, I suppose it is a business just suited to old women and children." The fact is, that it is a business requiring as much attention and intelligent care and thought as is devoted to the breeding of larger stock.

STATISTICS.

The importance of the poultry interest is greatly underrated by the casual observer. Its size and value are far beyond the ideas of those even who have given some thought and attention to the subject.

I have an old memoranda taken some years since from *Land and Water*, one of the great English Weekly publications, which gives the following estimates for the year 1865:

Value of poultry in the U. S. in round numbers	\$40,000,000
Value of poultry in Great Britain	55,000,000
Value of poultry in France	70,000,000
In the matter of eggs, France produced that year	8,000,000,000
Of which Paris consumed	160,000,000
Great Britain produced	7,000,000,000
Of which London consumed	300,000,000
And in addition imported from France.	60,000,000
The United States produced	6,000,000,000
Of which New York city consumed	150,000,000

This was the census report of fifteen years ago. How much the increase has been in Great Britain and France, I have no statistics to give, but here in the United States, it has been very great.

In the State of New York, according to the last census, 1875, the value of the poultry owned in the State was in round numbers	\$3,000,000
Value of poultry sold in 1875	1,800,000
Value of eggs sold in 1875	2,500,000

New York city alone now consumes over 20,000 car loads of live and dressed poultry yearly.

The capacity of a freight car is about ten tons; to be within bounds, allow only half that amount to a car load—five tons; and we have a total of 100,000 tons, which, at ten cents per pound (another low estimate) gives us \$20,000,000 as the valuation of the poultry consumed every year in New York City alone.

It also consumes over 300,000,000 of eggs, the value of the latter at average New York prices being \$8,000,000.

The number of eggs produced yearly in the whole of the United States is upward of 9,000,000,000, valued at \$240,000,000.

The value of the poultry consumed in the United States is estimated at \$300,000,000 per year. The total of the two items is \$540,000,000 per year, representing the value of the poultry and eggs consumed yearly by the people of the United States.

Remember that these figures do *not* include the amount resulting from sales of breeding stock and eggs for setting, nor of the stock kept for breeding purposes.

In our own State of Indiana the value of the poultry and egg product must be proportionately large, but I regret to state that I am unable to give you any figures on the subject.

Since I came to your city I have carefully examined your State reports, census and agricultural; and I find not a word relative to this important interest.

In your State agricultural reports, I find recorded the doings of the Woman's State Fair Association, Short Horn Breeders' Association, State Wool Growers' Association, Bee-Keepers' Association, Tile Makers' Association, Fish Culturists' Association, and other societies; but not one word or figure relative to your State Poultry Association, or the amount of value of its large and increasing interest.*

Is it not of sufficient importance to be mentioned in connection with other agricultural interests? I have hardly a doubt that if correctly figured, it would stand *third* in the list of industries which I have just named. And yet it is not even mentioned. See to it, officers and members of the Indiana State Poultry Association, that the industry which you foster and represent is placed in its proper light before your citizens, and that hereafter it occupies the place to which it is entitled upon and among your State records.

With these figures before us, and the fact that they are not based upon the date of the past year, but several years since, and the knowledge that the amounts must be considerably increased to correspond with the proportionate increase in population, and therefore of consumption, who can say that the interest we poultry breeders and fanciers represent is a trivial one?

The extent and importance to which the interest has grown is also incredible; especially so, to those who remember how, in their boyhood days, the chickens were looked upon as a necessary nuisance; to be tolerated because the female portion of the household looked to them for a supply of pin-money.

In those days—and those, to us by-gone days, are still to be found exemplified in many sections of the country—the fowls were regarded as a species of freebooters, living by their wits and preying upon the industry of the men folks. They roamed when and where they pleased. If, perchance, they made too free with the newly planted

* Overlooked in the Agricultural Report of 1879.

garden, the dog was called to oust them, and the children, encouraged by their elders, pelted them with stones, sticks, or whatever was most handy. They roosted in summer in the trees around the door-yard; in winter, under the hovels and sheds, on the carts, wagons, ladders, or wherever they could find a place.

For nests, they had the whole farm. The manger in the stable; the hay-mow, in the barn; the old sleigh, under the cart-shed; the blackberry patch, in the corner of the hog yard; the brush heap, in the wood yard, or the high grass and weeds, in the neighboring meadow. Semi-periodical egg hunts were made, and the eggs obtained were sent to the country store and traded off for needles, thread, or other etceteras, many of these eggs proving to the final possessors too old for omelets, and too young for broilers.

With the young chickens the chances were the same. If a hen succeeded in hiding her nest, so neither human nor animal foe discovered it, she usually brought out a brood of chicks, nearly as wild as young partridges. Later in the season, as eggs become more plenty at the stores, some hens were set, and as fast as the chicks got old enough, they were killed and sold as broilers, those which were too wild to catch, and too late hatched to bring good prices, being left for stock for the next season. This was the only "survival of the fittest" known to the poultry keeper of those days. As to feed, the wood pile, barn yard, hog pen, and kitchen door steps were the "restaurants" of the summer; while in winter a few handful of corn in the morning were thought to be all that was necessary.

The weights of the fowls of those days were from three to three and a half pounds. Occasionally a "bouncer" of five pounds caused the neighbors to inquire into the "why and wherefore" of its superior size.

The eggs averaged twelve to the pound, and were not over plenty at that. Ducks, geese and turkeys were rather better cared for, but even they received only enough attention to preserve their lives, which would certainly be lost were they given no more care than the chickens.

Compared with the poultry keeping and breeding of the present day, one can quickly realize the great improvement that has been made.

Eggs average eight and nine to the pound, and frequently, by care and selection of stock, even an average of seven has been produced by some careful breeders. Broilers are made to weigh one and a half pounds at six weeks old, and adult fowls frequently dress eight and nine pounds, and I have known instances of twelve pounds and over.

The same ratio of increase is noticeable in turkeys, ducks, and geese. Since the poultry interest has assumed such importance, we often find turkeys in our markets weighing twenty to twenty-five pounds. Fifteen to eighteen pounds were formerly considered extraordinary weights for turkeys, and if a pair of ducks reached seven pounds, the producer was well satisfied; he had something above the average. Now, ten pounds is not unusual. Last fall I killed both Rouen and Aylesbury's which, at four to five months old, dressed ten pounds to the pair. Twelve, and even fourteen pounds, have been recorded as the dressed weights of full grown specimens.

The same in geese. The improved breeds, Bremen or Embden and Toulouse, twenty pounds now is not at all unusual in our Christmas markets. Pairs of the

latter have been exhibited in England, which weighed, *alive*, fifty-six pounds; nearly or quite double the weight of good specimens twenty-five years ago.

Nor is the improvement confined to size and weight. Quality, as well, has been looked for. A plump-bodied, full-breasted, yellow-fleshed and juicy, tender-meated chicken now takes the place of the lean and tough broiler of by-gone days. In eggs, the improvement in quality is equally noticeable. The idea that "*an egg is an egg*," no matter whether fresh or stale, whether stringy and tasteless, or meaty and rich, has exploded. We find as much difference in the quality of eggs as with any other article of food, the quality being practically under the control of the breeder. If the fowls have to shift for themselves, getting a precarious living in the barn-yards or the stubble field, the eggs do not have the rich melting quality which results from a good, generous diet of grain and prepared food. We might as well expect the same quality of beef in the half wild steer of the prairies as we get in the well fed thoroughbred Short Horn.

In the egg production also is the improvement apparent. In the "old times," to which I referred, it was a good flock of fowls which averaged fifty eggs per hen per annum. Now an average of one hundred is esteemed a law figure; one hundred and fifty per head being considered the necessary number to entitle a flock to be called *good layers*. We frequently hear of instances where an average of two hundred and upwards have been produced by small sized flocks, but these are exceptions to the rule.

The question here may be asked: "To what is this increased size of fowls and prolificacy of eggs due?"

I answer unhesitatingly, "To the enterprise of your so-called 'poultry fanciers.'" They are the ones who, by expensive importations of *thoroughbred fowls*, noted for their egg productiveness and their superior table qualities, and who by long and patient study and breeding have succeeded in perpetuating and establishing these qualities. The yearly exhibition of our poultry fanciers (one of which, and of unusual merit, is now being held in this city, and to which I would advise all to pay a visit before its close,) have aided in disseminating a knowledge—as well as love—of fine fowls, and have brought their superior size and qualities to the attention of our farmers, who are too intelligent a class not to see that it is to their *interest* to raise seven pounds of meat where before they only produced four.

The wide-awake breeder, be he fancier or farmer, appreciates the fact that a "*thoroughbred*," whether of cattle, sheep, swine or poultry, may be relied upon to make a better quality of food, than a so-called "native" or mongrel. In egg-production as in butter, the *thoroughbred* produces the choicest quality. And here let me add that in their production of eggs or butter respectively, the "grade"—produced by crossing thoroughbreds of different varieties, the *quality* does not deteriorate; but the capacity, or rather the power of perpetuating these qualities in the offsprings, is partially if not wholly lost.

In treating this subject, of poultry breeding, my object is not so much a comparison of the natural and artificial means, as distinctively separate methods; but rather to bring the two together to meet the wants and tastes of the advocates of each. And yet a comparison must be made, in order that we may see wherein one

way of accomplishing a certain work is superior to another; to ascertain how we can produce a certain result, with the least expenditure of time and money.

We speak of breeding by natural or artificial means, as if they were two independent systems or methods. Virtually they are; but the best needs of success results from a union of the two.

Viewed in this light, artificial breeding is not an entirely distinct mode of raising poultry, but simply an addition or improvement to the usual method,—designed to increase the business with a lessened expense and a greater profit.

I shall consider this subject of poultry breeding, from a commercial point of view; that is, rearing them for market. The same treatment, modified, being adapted to the needs of the breeder who raises only enough for his own table.

First, then, the location. My selection would be a dry situation, with a southern or southeastern slope. If on the bank of a lake, or pond, well; but I would prefer a small stream. A rough piece of land, with some underbrush and rocks, is not objectionable, unless the rocks are broken or piled up, so as to make a harbor for rats, or weasels. Some underbrush is desirable for shade, and if there were none on the place selected, I would plant some low-growing evergreens and currant bushes; the latter are beneficial for their fruit, the fowls being very fond of it, as well as for shelter from the heat of the sun.

In the buildings to shelter the fowls, I would advise a number of small houses, rather than one of large size, for the breeding stock. A convenient, as well as economical way would be to build each house *double*; that is, to shelter two yards of fowls, letting the dividing fence join the house in the center. Houses twelve feet long by six feet wide, will make two apartments, each large enough to accommodate fifty hens and four cocks, which are as many as had best be kept together. Provision must be made for ventilation, which in hot weather, must be ample. The yard for this number of fowls, should not be less than one-eighth of an acre, two-thirds of which should be in grass; the remainder, in bare earth, should be plowed or spaded in alternate portions every week. A small shed not necessarily over two or three feet high (a few boards held by a light frame will answer) should be provided, under which fix a dusting place of fine sand, wood ashes, and some tobacco-dust. It is thus dry in all weather. In exposed situations, I would make this shed for winter use, by raising the front three feet high, and letting the back down to and into the ground, having it open toward the south. In another part of the yard, place a trough or shallow box, in which keep a supply of fine gravel, unless the soil is gravelly, in which case it is not needed.

In fencing the yards, the height will have to be regulated by the breed of fowls kept. The Asiatics require only a fence of three feet to keep them within bounds, while the Leghorns and other light-bodied kinds will readily go over a board or picket fence six or eight feet high. A few years since I put up some fencing of wire-netting five feet wide, with a board underneath, making the fence nearly six feet high, and I find the Leghorns are perfectly controlled by it; better, in fact, than by a picket fence, two feet higher, which I had been using. In putting up wire fencing, never use a top rail; it gives the fowls a foothold to light upon, and they are certain to fly over.

In addition to the buildings for the breeding stock, there will be required a set-

ting or hatching room; a nursery for the young chicks, which should be partly covered with glass, and a second building, into which they should be placed when four or five weeks old. The size of these buildings is to be governed by the extent of the business. Beside these, there might be profitably used, one or more sheds, peaked roof, open on all sides, with perches placed not less than four feet from the ground. After the middle of April, the chicks that are old enough should be made to roost in these.

In the selection of stock, the breeder must be governed by the character of the business he has in view. If the production of eggs be the chief object, then his choice would naturally be Leghorns, Houdans, or a cross of these upon some other breed. If the raising of poultry for market, his choice would have a much wider range. On this point we could hardly find any two fanciers to perfectly agree. One, with his Asiatics, is positive nothing can be better; another says his Plymouth Rocks leave nothing to be desired; a third stands by his Games, and a fourth is confident the Houdans are the best in all creation; while still another agrees that all these may be good in their way, *known* that his Crosses combine more *good* qualities than it is possible to get into any one pure bred variety. And each one is right in his own opinion. The breed he has *suits* him, and he could make more out of it than he probably could from some other kind which, not fancying, would receive less of his care and attention. We see this question of "What breed shall I get?" illustrated over and over again in this way, and our advice to such inquiries is, to try that which best suits your fancy—you will undoubtedly make that succeed. Of course, in such advice, it is understood that the selection will be from some of those varieties which excel in the quality desired.

In selecting stock for laying, it is best to have one-half pullets of the last season's hatch, and the remainder, hens of one year old. Mate the first with adult cocks, the last with cockerels of the previous year. This gives stronger and more vigorous progeny. In the choice of cocks, select strong, vigorous birds, with a loud, long, full crow. Such a bird has abundance of lung power, and necessarily is in perfect health. Select your hens with a view to what you expect from them. By thus selecting the stock we have no cessation of eggs. The pullets commence laying in the fall or early winter, and by the time their first clutch is laid the hens are ready to take up their share of the work. This is usually in February, and by the middle of March they are through *their* clutch, and if not of the non-setting breeds, are ready to assume the duties of incubation.

Much of success depends on the *care of the eggs*.

In extremely cold weather it is best to gather twice a day—morning and night; and in warm weather, once a day—at night. If neglected, and a broody hen should remain on them over night, the chances are that they would be spoiled. A very few hours of the proper heat for incubation develops the germ, and if a cessation of that heat then occurs, the life is killed.

More eggs are spoiled in this way than by getting chilled in cold weather. The question of how much cold an egg will stand without destroying the vitality, is a mooted one. Some years since, in the course of my experiments, I placed several eggs out doors one cold winter night. Next morning two of them were frozen and the shells burst. The other two, which were partially covered with snow, were

placed in a pan of cold water for an hour and then put in the incubator. One of them germinated, and at the end of ten days the embryo was progressing finely, when a forced absence from home obliged me to relinquish the experiment. This would seem to denote that unless the shell was cracked by a low temperature the germ was not necessarily killed. But it would be unwise to base an opinion on a single result.

Another matter which might be considered here, is the question "How much jarring an egg will stand?" Many of my hearers know that it is not an ordinary jarring or jolting, no matter if it be continuous, which injures the eggs, but a sudden and severe shock, which by disrupting the "*Chalazoa*," or cord which suspends the yolk, puts an end to the vitality of the egg.

Some years since a tabulated statement went the rounds of the press, showing that a hen could not possibly lay more than six hundred eggs in the course of her natural life.

This number was parcelled out as follows:

The first year after birth	15 to 20
The second year after birth	100 to 120
The third year after birth	120 to 135
The fourth year after birth	100 to 115
The fifth year after birth	60 to 80
The sixth year after birth	50 to 60
The seventh year after birth	35 to 40
The eighth year after birth	15 to 20

This table was assumed and based upon a microscopic investigation of the ovarium of a hen by some European savant. For once science was wrong. Within the past five years a number of persons have kept careful count, and have found an egg production of nearly 1,000 during the eight or nine years of a hen's life. I, myself, have had a yield of over 350 eggs per hen in two years, averaging 175 yearly, from a flock of Creve-Coeurs, while my Brown Leghorns yearly exceed that record. Two years since, from a flock of sixty-one hens at first, of which two died in February and March, and thirty-four were killed for the table prior to July, I gathered between January 1st and September 1st 6,257 eggs. Taking forty-three as the average number of hens through the season, this gives an average of 146 eggs per hen for eight months. Of these sixty-one hens, only twenty-five were Brown Leghorns; six were Light Brahmas, four Plymouth Rocks, and the rest were crosses and mongrels. Had the flock been all Leghorns, I have no doubt but the average would have been fully 175 eggs per hen.

This production of eggs may be forced by suitable feeding, and, in breeding for profit, it should be done. Assuming the table given above to be correct in the *proportion* of eggs laid at certain ages of the fowl, it follows that, to get the full value of the egg production, we must keep her until the fourth year. If, by proper feed and attention, we can cause her to lay three-fourths, or more, of that possible number during the first two years, we can then fat her for market, and fill her place in the yard by younger fowls, to go through the same forcing process. It is folly to feed and keep a hen four years, when the bulk of profit may be obtained from her

in half that time. I should, therefore, advise fitting her for market as soon as she has finished the best of her second seasons' laying, which is usually about June. The cocks may be kept until three years old if desired, but usually two years will be found the most profitable age to market them.

The Asiatic, and also some other varieties, are sometimes troublesome in their disposition to sit. When they are so persistent in the matter, and it is desired to have them laying again, either of these two methods will be found efficacious: Put the hen in a box with a lath bottom—the laths not over an inch wide, and two inches apart; the box a foot or more above the floor. Having no way of keeping her feet and breast warm, the feverish desire to sit is soon cooled off, and, usually, in three days she is ready again to be turned into the yard. Another remedy is to put the hen in a small pen, with no perches, and place with her a vigorous young cock, kept by himself for this purpose. Two or three days will usually effect the desired result.

Where the hens are to do the hatching, they need to be removed to the sitting room. This should be done at night. Have the nest ready, with half a dozen nest eggs, and fixed with a cover. After dark take the hen in a basket to the room, and gently place her on the nest, covering or shutting her in. Do not open the nest again until the next evening, when let her out and give her food and water. After fifteen or twenty minutes, if she does not go on the nest herself, catch her and put her on, again shutting her in. This may need to be repeated three or four days, but usually, unless the hen is nervous and wild, she will take to her nest of her own accord after the second day. When she does, then give her her eggs.

The French use turkeys for hatching, and in some places on quite a large scale. In some sections there are men who follow it as a business—hatching out chickens for the neighboring farmers at “so much” apiece, or buying the eggs and selling the chickens as soon as old enough. One person in the vicinity of Lyons is said to have sixty turkeys sitting in the hatching season. Some years since I tried this method myself. It is not necessary that the turkeys should be broody. When wanted they were caught, given a small wine glass full of spirits, and placed on the nest with some dummy eggs under them. When they come out of their “drunk,” they either imagined that they have legitimately begun their new business, or were so ashamed of their spree, that rather than show themselves to their mates, they prefer to remain in seclusion. These turkeys are kept sitting from two to three months. As fast as the chicks hatch they are taken from the nests and fresh eggs placed under the turkeys for another clutch. Twenty eggs is the usual clutch given an ordinary sized turkey.

This same system of re-sitting may be profitably pursued with hens. Where sitters are scarce, a good, quiet hen may be made to bring out two and frequently three clutches. Care, however, must be had to keep hens and nests scrupulously clean, and have them come off regularly once a day for feed and water. In one case, which was an experiment, I kept a hen sitting for thirteen consecutive weeks, bringing off four clutches of chickens, and I did not find that she was any the worse for her long period of incubation.

Another saving of time and expense, for which we are indebted to the French, is the use of capons to take care of the chicks after hatching. The capons are

placed in a room, or pen without any perches, a week or two before they are needed. This accustoms them to squat on the floor or ground instead of roosting. At night one of them is removed to a small coop, and as soon as he gets quiet, a few chickens are placed under him. The next day others are given to him, and they frequently have the care of twenty-five to thirty chickens which they hover and tend as carefully as their natural mother.

It is hardly necessary for me to refer to the practice of doubling up broods, and I will merely state that among those who raise poultry for market, it is customary to sit several hens at the same time, and give the whole hatch to one hen, re-sitting the others. I have seen this done on the Metropolitan Hotel farm to a greater extent than I know of elsewhere. An old Scotchman and his wife had charge of the poultry there, giving their whole time to it. I have seen broods of sixty to eighty chickens with one hen in May and the warm months. Seventeen acres were here inclosed and devoted to poultry. The yearly product was about 3,000 chickens, 300 to 500 turkeys, and nearly the latter number of ducks. The laying and breeding stock, as well as the growing chicks, were fed largely upon the scraps from the hotel table, which were barreled and sent up twice each week.

Thus far we have treated this subject purely in its natural light, or, rather, as we pursue it unassisted by any mechanical appliances.

In treating it, as followed by artificial means or methods, it is perhaps best to digress a few moments from the subject proper, and consider briefly what the artificial methods are, for, strictly speaking, there are two methods of hatching artificially: One, in which the eggs are subjected to heat all around, above and below, i. e., enveloped, and the other to only a top, or contact heat, the same as given by the hen. We might term the two systems in contradistinction—the first an enveloping heat, the second a top heat. This heat may be communicated by hot water, steam, or a current of hot air passing over or through the egg-chamber, or by imbedding in a manure pile. All seem to be efficacious, though in unequal degrees, provided the proper temperature is kept up. But it is here where the method of “enveloping” heat fails. My own experiments with this method, and which are corroborated by those of English experimenters, is that the only temperature which will give good results is 104 degrees, Fah., and this heat *must* be maintained steadily throughout the three weeks of incubation.

The difficulty of keeping such a uniform temperature in a climate like ours, is manifest. Except with the almost constant watchfulness of an attendant, it would be next to impossible.

With the other method—top heat by radiation—a daily variation of from two to three degrees is not injurious, provided the eggs are turned regularly, and properly handled. In fact, an occasional variation of even five degrees is not necessarily hurtful, though in the earlier stages of incubation it had best be avoided. I advise a daily variation of not over three degrees, except, of course, the lowering of the temperature while the eggs are being aired and turned.

This top, or contact heat, is the nearest imitation to the natural process. Take, for instance, the hen or fowl making her nest on the ground, the top of the eggs, when in contact with her breast, are kept at the required heat; while the bottom of the eggs, resting on the ground, must be many degrees colder. So, also, with the

nests of birds; the nest is open and admits almost free circulation of air to the bottom of the eggs, while the top is kept warm by the mother bird. Such being the case, is it but reasonable to suppose that the top-heat system should give better results than the placing the eggs in a warm bath, as it were, which is the case in all methods or machines when the heat is applied under or around the eggs. My experiments in this direction have been frequent and exhaustive, and cost me many hundreds of eggs, as well as disappointments, but I can only regard the experience as cheaply gained, now that I have attained such a high degree of success.

When we consider the process of incubation, the reasons for following natural methods are very plain. We can not hope to improve upon her ways of creating and developing animal life, and our best way is to imitate her as closely as possible.

It is well known to most breeders, and probably to many of my hearers, that the germ, or life-giving principle of the egg, always floats on the top. Under the influence of the heat the arteries and veins expand and extend, following the outside of the white of the egg until they reach completely around the yolk. The extremities of these veins are very fine and delicate. Nature, in her wise provision for the best development of their growth, insures the bottom of the egg, where these fine veins are, being kept rather cooler than the top. The contact of the body of the mother bird with her eggs, heating the top of the eggs, and keeping that portion several degrees warmer than the bottom.

When, therefore, the heat is applied under, or all around the egg, these minute veins, instead of growing, shrivel and dry up; the yolk sack, instead of being absorbed by the growing chick, dries fast to the shell, and about the fifteenth or sixteenth day the chick dies. Some may reach the twentieth day, and a few may and do sometimes hatch out, but the percentage is so very small that it virtually amounts to a failure.

The next point to insure success is the turning of the eggs. The hen usually makes her nest slightly hollowing, and when sitting thrusts her feet below the eggs. At intervals she raises one foot, which motion causes all the eggs on that side to roll down a little toward the center of the nest; then she raises the other, and the eggs on that side are moved; by this simple action the eggs are moved in position as well as turned; she will also with her beak move the eggs from the center of the nest to the outside. Instinct or nature, whichever you choose to call it, teaches her that the eggs under her breast receive a greater degree of heat than those under her wings or on the outer edge of the nest; and that to succeed in her maternal efforts, she must give all the eggs, in turn, the benefit of the greater heat. In doing this the eggs are turned; and whether it is called turning the egg, or something else, the effect is the same. To test this matter, I have several times carried eggs through the whole three weeks in the incubator without turning or moving them at all. Unless some accident interfered, there were some which hatched—generally from 30 to 40 per cent.; others which pipped the shell, but had not strength enough to get out; and still others dead, with the yolk sack not fully absorbed, and dried fast to the bottom of the shell. Of those which did hatch, most were weakly, and fully one-half died before they were a week old. One lot which I turned twice a week did 10 or 15 per cent. better. Another, which was turned daily, hatched 70 per cent.; and a final test, when I turned the eggs *twice* daily, I obtained fifty-eight

strong, healthy chickens out of sixty fertile eggs, and both the remaining eggs had fully developed chicks in them.

Hence I adopt the practice of turning twice daily, morning and night.

Further experiment—turning them three and four times a day, have not given any better than this.

We may now consider the practical application or use of artificial incubators. Most persons, even among those who yearly raise large numbers of poultry, have treated it as an amusement for the fancier or gentleman farmer who might, perchance, manage to hatch a few puny, sickly chicks, at a sacrifice of dozens of eggs. That this has often been the case with incubators, is but too true; but the great improvements of the past few years make such a result among the things that may only *possibly* occur by carelessness or negligence.

We have an incubator which, with fifteen minutes attention morning and evening, any intelligent person can certainly hatch from seventy-five to eighty-five per cent. of the fertile eggs.

It is unnecessary to assume what gain this would be over the natural way, for it is well known to every one who has had any experience in this line, that the average result among the farmers and breeders of poultry for market will not nearly reach that figure.

Take, for instance, 100 eggs, to be hatched in the natural way; these would require eight hens to cover. Of these eight, one would desert her nest before her brood was due, two more would each break one-third of their eggs, and the remainder average ten chicks to a sitting, or say a total of sixty chicks from the 100 eggs. This, as many of you will know, is a good average result. It too frequently happens that the hens will become apparently in the condition of the herd of swine mentioned in Holy Writ—possessed of devils—and conspire to break all the eggs they possibly can, and then leave all they could not break to chill and die.

I know of one such case the past season, where a neighbor secured from eleven hens a single brood of eleven chickens—an unusual result, you say, but one such result cuts down the year's percentage far below my figures, and thus proves my assumption.

And now, to one summary of the two methods:

Assuming that we wish to turn out 400 chickens per week for ten months of the year, which would give us about 17,000 in all, we would need for this three incubators of 500 eggs capacity each. These, of the pattern on exhibition at the Poultry Exhibition—the New Centennial—would cost \$100 each. I would also add one of the small size, 100 egg capacity, as an auxiliary, costing \$40, making the total cost of incubators \$340.

You will please bear in mind that I am allowing for a loss of twenty per cent. of the eggs, which is fully five per cent. more than the average loss with this machine.

To keep these machines stocked with eggs to their full capacity, will require 500 per week. Taking the season through, the average hen will not lay oftener than three days out of the seven, hardly that—yet we will assume that as our average—hence, for every three eggs we get we must keep seven hens. At this rate, we shall need about 1,150 (actual number is 1,166) hens to keep the machines stocked, which

at fifty cents each, (a very low figure, as you poultry breeders all know), will cost \$575. Our outlay, therefore, so far, amounts to \$915.

Now, as to the number, regarded by the natural method and the cost.

First, we must allow for a loss of forty per cent. of the eggs under this method. After twenty-five years' experience and observation, I feel satisfied that nine-tenths of our farmers will exceed that per cent. of loss rather than come below it.

We shall require, on the same rates as computed above, 1,540 hens for our laying stock alone to produce 660 eggs weekly—the number required. To cover these, allowing thirteen eggs per hen, will require fifty hens per week for three weeks, 150 in all. Now, allow that we double broods when hatched and re-sit half the hens, and we must have twenty-five hens more for the fourth, fifth and sixth weeks, and each succeeding week after.

Allow also six weeks as the time each hen runs with her brood and then immediately commences to lay again. We are consequently losing with every hen a laying period of nine weeks out of the season, which, estimated at forty-two weeks, is three-fourteenths of her time.

To compensate for this we must add 330 more hens to our flock, making 1,870 in all; which, at 50 cents each, the same as above estimated, makes \$935, as the outlay by the natural method as against \$915 by the artificial; a clear gain of \$20 in cash in favor of the latter, without taking into account the trouble of obtaining your sitters just when wanted.

As we most of us know, when we have abundance of eggs we have few sitters, and when we have plenty of sitters eggs are often scarce. With the use of incubators we have no difficulty from this source, our *sitters* being always ready.

Our next comparison is as to cost of hatching. First we will consider the size of room required to cost the same in either case, though in reality the space required for 150 sitting hens will be double or treble that needed for four incubators.

The nests for the hens, at a low estimate of 10 cents each, will amount to \$15; straw or hay for the nests *for the season*, say \$5 more, next feed. It is computed that \$1 will keep a hen a year, i. e., when she is running out and has access to worms, grubs, etc., which in this case she has not; and I do not think in that view of it that \$1 per head is too much to charge for the ten months; say \$150 for feed plus \$20 for nests and litter equals \$170. The matter of attendance is a difficult item to get at, and we will leave it for the present.

Now our machines will burn say ten gallons of oil per week. This is allowing three gallons for each of the larger and one gallon for the small machine. (I think this is an over estimate.) At sixteen cents per gallon, which is the average price in the New York market, this will cost us for forty-two weeks \$67.20; wicks, and possibly new burners, \$4.80 more. Add also interest on the cost of our machines, at six per cent., \$17, and we have a total of \$89—call it \$90 even money, which, taken from \$170, leaves \$80; again in favor of the machines.

Next comes the question of care or attendance, which we can not estimate, although it is very evident that the care of 150 hens must be double that of four incubators.

The next cost to be considered is the coops or brooders for the chicks. If we follow the artificial system exclusively we shall need brooder accommodations for

400 chicks weekly, which will cost us for three brooders, No. 4 size, 400 chicks each, complete, say \$35 each—\$105. To these we must add three summer mothers, at \$10 each, making \$135.

In coops, if we use hens as brooders, we shall need twenty-five each week for six weeks, making 150 coops, allowing \$1.25 (which is 25 cents less than I have ever been able to get them made for), and we have a cost for coops of \$187.50—another balance of \$52.50 in favor of the artificial method.

The cost for oil for the brooders will not be any more, and probably hardly as much as the food of the hens while cooped with the chickens.

We have thus far figured a clear gain of \$152.50 in favor of the artificial method giving the hens the benefit of the estimate in every case.

Next we must consider the great gain derived from the increased number of chickens raised under the artificial system over the natural one.

This is computed by breeders who have tried both to be fully ten per cent. Hatched artificially the chicks are free from lice, for there is nothing from which they can be communicated. And, as lice and mites are, without doubt, the cause, either directly or indirectly, of fully two-thirds of our poultry ailments, it follows that our young stock is healthier, more thrifty and growthy, and we are enabled to raise a much larger per cent. than with the hens.

Another gain, and one that commends itself to every breeder of poultry, whether for fancy or for the market, is the advantage of always being able to sit the eggs while they are fresh, whether it be in midwinter or midsummer.

This waiting for broody hens while your eggs are spoiling is a source of great annoyance as well as much pecuniary loss to the breeder, and should be a strong argument in favor of his adopting the artificial method.

Another advantage (which, while not a pecuniary one, is of great satisfaction to the fancier) is the resulting gentleness of the young stock. Even the natural timidity of the Leghorns and Hamburgs—the most shy of our domestic breeds—is overcome, and the chicks take food from the hand, and perch on the shoulder of the feeder with an entire absence of fear. This has many advantages, which is quick to be appreciated, especially by ladies who have the care of the chickens.

We estimate that to produce and rear a chicken by artificial means to eight weeks old, costs an average of fifteen cents each. This is in the vicinity of New York; in the West, where grain is cheaper, it will cost somewhat less.

I speak especially of this age—eight weeks—because it does not pay us in the East to raise them to adult age. At this age they are worth for broilers from fifty to seventy-five cents each; for every week *over* that age the cost is increasing at a much greater ratio, and the price is either stationary or decreased.

The next exhibition will be held at Indianapolis the second week in January, beginning on Wednesday and continuing for six days.

H. C. G. BALS, President.

D. H. JENKINS, Secretary.

CHICKENS—THEIR CARE AND MANAGEMENT.

BY MRS. G. A. DANLEY, OF MARION COUNTY.

[Read before the Marion County Agricultural and Horticultural Society, at the March meeting, in the Agricultural rooms. This address embraces a large amount of practical experience and information, which, together with the address preceding, will be valuable to every poultry breeder, and especially to amateurs in the business.—SECRETARY.]

It seems to me there is not much new to be said about poultry raising, especially if one has read the poultry papers, one of which every farmer ought to take. It is the oft-repeated story, but if I tell it again perhaps some one will be benefited by it.

Poultry raising in this country has become an extensive business, and is growing more in importance every year. He who raises the best fowls of any good breed, for market, for breeding, or for exhibition purposes, will not only make his mark as a breeder, but will be looked upon by fanciers as one who displays good judgment in fowl culture. We Americans generally look at everything from a financial standpoint. Our first question is, "Will it pay?" That depends altogether on the management. The secret of success is simply doing what you can do well. Certainly, what is worth doing at all is worth doing well. Now, if we begin with that idea, and a natural love for poultry, we are sure of success. The poultry yard can be managed so that it may become one of the most remunerative portions of the farm. With a little thought, and a trifle more expense, it is as easy to raise finely bred fowls as those of a common order, and the effect is far more pleasing. He who wishes to improve his stock from year to year, must be continually weeding out the imperfect birds, and breeding only from those which show the desirable qualities. If farmers would take as much pride in improving their poultry as they do other stock, their yards would not present such a motley coloring of fowls. Symmetry is altogether disregarded, and breeds are crossed and recrossed with just that effect that arises from no management at all.

The practical part of poultry business is where the attention must be bestowed. Get the women interested; give them good quarters for their fowls; help them, if necessary, to keep them in good order, giving them the proceeds for their pin money, and, with their constant care, that part of the question will be solved. If your poultry house is not warm, make it so, to protect your hens and chicks from cold, damp winds. Have it on a dry hillside, facing the south or east, if you can, giving the fowls the advantage of the warmth of the sun in winter. Arrange it so that it can be thoroughly ventilated at all times. Have a hard floor, covered two inches deep with fine gravel, so the droppings can be easily taken up. The perches should be smooth and not too high, with just as little "riggin" about them and the nest boxes as possible. Everything should be movable, so the whitewash brush can be easily applied on all sides. Change the nests often. A few drops of crude carbolic acid in the whitewash, for the perches and nest boxes, will be found a good

preventive for vermin. Vigilance is the watchword. The comb is always an index to the condition of the fowl. Look at your hens every day; see that they are healthy, and keep them so. A good warm mess of potato parings and scraps from the kitchen, all boiled up together, seasoned so it is palatable, and thickened with bran and a little corn meal, is much relished, and excellent for them in the morning; occasionally may be given a tonic of cayenne pepper, but not too much. The remainder of the day feed whole grain as they need it. A box well filled with old plastering, oyster shells and charcoal, with a little pounded up fresh every morning for them to pick at, is of great advantage. I find nothing better to keep them healthy than plenty of broken charcoal. The short cut grass from the lawn during the summer, clean and nicely dried in the shade, is greatly relished by them in winter, when deprived of their natural supply of green feed. Whether in or out of confinement, they must have meat food in some form—the hens demand it to produce eggs in abundance, which they will not fail to do, if fed a little every day, when they can not have access to their natural supply of bugs and worms. It is better to give it to them raw, as nature supplies them. A hen is a machine. Give her plenty of the rough material, and she'll return you a nicely formed egg, which no mechanic can duplicate.

Feed regularly, and especially the young chicks. There is no kind of stock which appreciates regularity in feeding more than poultry, and those who practice it are sure to find that it pays. Habit has been truly said to be second nature, and all kinds of animal life appreciate the fact. Certain hours should be set apart for feeding the fowls, say seven in the morning and six in the evening, and it will not be long before they will come together on the approach of the feeding hour, and eagerly look for their regular rations. Regular feeding is beneficial alike for those in confinement and those which have their liberty, for it induces the latter to return home at a certain hour, and thus prevents losses which would otherwise occur. On the farm, where poultry is seldom, if ever, confined, regular daily feed, especially in the evening, should be adhered to, and this is with turkeys an absolute necessity, as their predatory habits would lead them so far away that they would form habits of staying.

Perhaps it would not be amiss to add a few words about sitting hens. When I have a trusty hen that is broody, and I can sit her where she is undisturbed by the others, I give her eggs the first night she stays in her nest—not porcelain, but the sure-enough eggs, and she thanks me for it by tucking them under her with her bill and giving her body that peculiar shake that is unmistakable proof of settling down to business. If she is a young hen, and I can not leave her where she is, I get a box and fix a nest, putting in the eggs I want her to sit on, take it to her nest late in the evening, gently remove her and feed her well, placing the box in her old nest. She will soon take possession of the new nest and become quiet. After dark I move her where I want her to stay during incubation, placing a cover over her till the next evening, then remove and let her see where she is and become familiar with the surroundings, and she seldom fails to get off and eat and go back to her nest without further trouble. Treat them kindly and they will appreciate it by behaving nicely. I have set them and moved them three miles on the nest, and they did well. As a general rule early pullets will give you more eggs during the

winter, but old hens will get broody first and make the best mothers. It is better to set three or more hens at the same time, and when the eggs have been sat upon ten days, examine them between the eye and a strong light, or take the lamp after dark. If the egg looks clear it will not hatch. If it looks dark, with the air sack large it contains the embryo of a chick. After the fertile eggs have been separated from the clear ones they will probably go under two or more of the hens which will bring out full broods, and you will have one hen that can be given fresh eggs. If the hen is sitting off the ground in a dry place, sprinkle the eggs with tepid water a few times the week before hatching, and you will not find so many chicks dead in the shell. When she is through hatching let her remain on the warm nest with her brood for twenty-four hours. The chicks will not eat before that time, and they are gaining strength all the time. Then feed them light, nutritious food, always cooked. Hard boiled eggs and oat meal or bread crumbs rubbed up together are excellent; coarse corn meal mixed with sweet milk and baked is good. Feed often and a little at a time, with a good drink of sweet milk two or three times a day, but never let it stand by them. When a month old they can be given cracked corn or wheat, but always that which is good; wheat is better and cheaper than screenings for chicks. It is a mistake to underfeed the growing chicks. They require more solid and varied food in proportion, while growing, than at any other period of their lives. Like any growing animal, they require plenty of good, wholesome food, supplied often and bountifully, to enable them to grow rapidly and develop properly. If you have the Asiatic fowls and have properly mated and cared for them, at two months old you will have some in each brood large enough for broilers. Then as the "early bird gets the worm," you will receive the best prices for your early chicks. Another advantage is that they are off before the hot weather comes on and the poultry's pests begin to multiply by the million.

In the hot summer comes the hard work to keep your breeding stock for the next year healthy and free from vermin, always remembering that poor shelter, care and feed will in a few generations make scrubs of the finest thoroughbred stock. Thoroughbred scrubs are little better than native scrubs, and the farmer who raises either will always be poor. Breeding the best stock and keeping it in the best condition possible pays the largest profits. About the first of June I shut all the chickens out of their houses and let them stay, night as well as day, in cool sheds prepared for them adjoining the house. It is no trouble to change them, and they are far more comfortable of warm nights. There they have plenty of shade, and clean, cool water twice a day; and if the yards get foul take a plow or spade and turn the earth over, and it will give the hens plenty of employment to level it according to their own notion.

I now close the house perfectly tight and fumigate with brimstone, and leave shut up for a week, or perhaps all summer. Then it is whitewashed, and in October, when the nights grow cool, I open it and let the fowls and chicks in for the winter, first seeing that they are free from vermin. Feed them well, as before said, and as soon as they are through moulting you will have an abundance of nice fresh eggs. Gather them regularly every evening, and, if you want to sell them, you can get five cents above the market price, if you have the Asiatics, as their eggs are larger than those of smaller breeds.

If you want your chicks to have bright yellow legs, never allow them to run or wallow where unleached wood ashes have been thrown, they will bleach them white. Use sulphur sparingly or it will kill more chicks than it cures; yet it can be used judiciously on old fowls. If lice have accumulated during incubation they will easily be seen on the heads of the chicks. When you take the mother hen off with her brood rub her well under her wings and body with grease. When she broods her chicks their heads come in contact with the grease, which the lice can not long endure. Give her a good place to dust herself in and she will soon rid herself and chicks of the pests. Keep the chicks from huddling in heaps at night after the hen leaves them, lest some get too warm, afterwards taking cold, which ends in roup, the dreaded disease. I fear it more than cholera, although I never had the latter in my flock, and by keeping everything strictly clean you need never fear it.

I often read in the poultry journals that it is not much work to take care of poultry. I have always found it just the reverse. Still, I like it for the out-door exercise and natural love I have for pets. I also found it very remunerative, but I find there is as great a demand for that article called common sense in poultry raising as in everything else.

The third year I gave poultry my attention I kept a strict account with the bid-dies. I had thirty-two Light Brahma hens and forty half-bloods for sitters. In the early spring I sold ninety-two sittings of eggs, twenty-two half-bloods for sitters, and raised near 700 chicks. I sold some for broilers and some for breeding purposes, and packed over 150 dozen eggs during the summer. I sold all the culls Thanksgiving, and at the end of the year the books showed a balance in my favor of \$791.34. Since that time I have kept no accurate account, but am satisfied to continue until I find something better.

Most of the farmers have their poultry yards over stocked; hence it costs more to feed them, and they are not so remunerative. Cull your flocks in early fall, and the remainder will do better and be more profitable. The cost of feeding varies with the price of grain. Farmers do not feel this as we who have it to buy. If the fowls have their liberty, the cost of feeding is a mere trifle. It is estimated that one and a half bushels of corn will keep a hen one year. Our estimate of the cost of one hen one year, in confinement, was eighty-seven cents, but she had a variety of food. Where they are comfortably housed it costs less to feed them, and they will lay more eggs.

A few timely hints in regard to treatment as the weather grows warmer, and I have done. During the heated term, all kinds of vermin propagate rapidly, and, if allowed, will prove to be the pest "whose name is legion." Examine your fowls frequently to make sure they have no lice upon them, and watch with a jealous eye for the appearance of the tiny, but abominable pests—the poultry parasite. The "ounce of prevention" should be brought into requisition now, if ever. If hens are kept sitting for late chicks, have special care to provide a cool, quiet place on the ground for them. A little hollow made in the earth, with a lining of clean, fresh grass, is sufficient. If the eggs get foul, wash them clean in tepid water, line the nest with fresh grass and replace the eggs. Carefully study the habits of your hens with chicks. They will be found to vary as much as other folks in disposition and

habits. Such as prove quiet sitters, careful and successful mothers, and tractable when their keepers approach, should be spared for another year's service. I have one (Old Brownie) seven years old, and she now has seventeen hearty chicks.

The great value of milk as a food for poultry seems to be overlooked by farmers and those who have plenty. It is good for them in all shapes. It is eagerly eaten by them, and they will thrive on it as they will on nothing else.

The above is largely my own experience, and hence I know whereof I speak, and I find that by proper devotion to the demands of the nature of our fowls, one will have but little use for the study of diseases. But there is work about it, and there is about anything we undertake if we do it successfully. Constant vigilance is the price of success in almost every undertaking, and in none other is it more applicable than in the breeding and management of poultry, whether pure bred or not, if profit is the desired result.

BEE-KEEPERS' STATE ASSOCIATION.

FOURTH ANNUAL MEETING.

ROOMS OF THE STATE BOARD OF AGRICULTURE, }
January 10 and 11, 1883. }

The meeting was called to order at 10:30 A. M., President I. N. Cotton in the chair, with all the officers present.

Before opening in the regular order of business, the President called attention to the death of Rev. J. C. Bellman, a former President of the association, and appointed a committee to take action on the matter, consisting of Dr. J. H. O'Rear, Mr. J. W. Robinson, and Mrs. Cass Robbins.

The Secretary then made the following report :

Mr. President, Ladies and Gentlemen :

For a general report of the proceedings of the last annual meeting of the association, I would respectfully refer you to the printed report of the State Board of Agriculture, which, through the kindness of Mr. Heron, are given at some length. It was the aim and desire of the Executive Committee to have given this report in pamphlet form, for distribution to the members throughout the State, but the financial condition of the society would not admit of so large an outlay as the proposed work would require. Since my last report I have collected dues to the amount of \$42.00, which amount I have turned over to the Treasurer, taking her receipt for the same. He also reported an itemized account of expenditures to the amount of \$21.19.

The report of the Secretary was approved and ordered placed on the minutes.

TREASURER'S REPORT.

Receipt from former Treasurer	\$15 98
Receipt from Secretary	42 00
Total	<hr/> \$57 98

DISBURSEMENTS.

Expenses allowed the Secretary for postage, etc.	\$21 92
Central Printing Company	5 50
Janitor's fee	2 00
Stenographic report	15 00
1,000 postal cards	10 00
Total	\$57 42
Balance	58

The following communication from Ohio, directed to the President of the association, was read.

WAGON WORKS, TOLEDO, OHIO, January 8, 1883.

To I. N. Cotton, President Bee-Keepers' Association:

DEAR SIR:—I see by the American Bee Journal, that the Indiana State Bee-Keepers' Association, of which you are President, meets at Indianapolis, Wednesday. I would like to be there and make the acquaintance of yourself and other bee-keepers', but have got to go in another direction, so I do the next best thing, write.

By referring to page 808 of last year's American Bee Journal, you will see that we had a fine bee and honey show at the tri-State fair here last fall, and organized a tri-State bee-keepers' association. Mrs. Dr. E. Rolshausen, of Logansport, was in attendance, and was chosen Vice President from Indiana. Those in attendance promised to help all they can to make it still better next fall.

I inclose our last year's premium list, and would be glad to have you make any suggestions you may think best, and lay the matter before your State association for any suggestions they may see fit to make, and invite as many of them to aid the cause by sending exhibits and coming themselves, as can make it convenient to do so.

Please ask your association to send me the name of some one that I may invite to act as a member of the awarding committee. Such a person will be provided with a pass to the grounds for the week and furnished with dinner on the grounds each day.

Mr. Heddon will represent Michigan on the committee, and Mr. Muth, Ohio, and Mr. T. G. Newman will be chairman of the committee.

We expect the privilege of selling will be allowed to all exhibitors the same as last year, and we want to make this one of the features of our department.

I would be glad to add your name to the list of those that have promised to be here. Prof. Cook will also be in attendance if he can leave his college work. Please let me have an encouraging response to this invitation.

Very truly yours,

A. B. MASON.

The President then read his annual address.

PRESIDENT COTTON'S ADDRESS.

Ladies and Gentlemen of the Indiana Bee-Keepers' Association:

This is our fourth annual meeting since our organization, each year increasing in interest, each member being ready to give a reason for the faith that is in him in regard to the little busy bee. Our society is organized on philanthropic principles for the general dissemination of knowledge of the mysteries of this busy insect. A few years ago the masses would have thought it miraculous to have seen bees handled with impunity as we now handle them, and yet we are not satisfied with our progress, nor should we be so long as we can save the life of another colony or cause them to produce another pound of honey. While the winter of 1880-'81 will long be remembered by the apiarist, the question that arises is, have we been benefited by our experience and observation to that extent that we may reasonably expect to avoid another such disaster? If we have not, we have not taken the lesson that nature has given us. While the old elm-peeler hog could bury himself in the ground beside a log and winter through without much comfort to himself or profit to his owner, the improved Berkshire or Poland China can not stand such treatment, but needs to be well housed to give his owner a good profit, and the same may be said of all the domestic animals, and the honey bee is not an exception to this rule. We no longer expect to get profit from the bee in the old log hive left standing exposed to the cold Northwester' without protection, no more than we would expect that the old brindle cow that has to shelter under the leeward of a rail fence would give profit to her owner. Then, as true humanitarians, let us investigate in the light of science and experience, and especially the subject of wintering, for this is the reef that we have wrecked upon. In wintering, some attribute their success to ventilation; others to the extracting of bad, unripe honey; others to the temperature, and so on. Now, without entering into a discussion of this subject in this address, for I prefer to leave the discussion of this subject, with all others, to this convention, merely hinting at a few subjects which I may think of importance to bee-keepers, some of the things necessary in wintering, in my experience, is a hive of proper size, contracted according to the number of bees, with plenty of good, ripe honey or sugar, with good ventilation and well protected from the cold. But the questions arise, what is the proper size of the hive? how shall we ventilate? and how shall we protect from the cold? with numerous other questions which this association may discuss with profit. I would advise all beginners to study the physiology and habits of the bee, which may be done by reading Quimby, Langstroth or Cook; and without the study of some such standard work on bees, our bee journals must sound much like German does to the man who can not speak German. But if he has studied all that has been written on the bee, he none the less needs to read some good bee journal to keep up with the progress of the age. But we can not expect every family to take enough interest in bees to supply themselves with honey, when they, with plenty of garden room, fail to exert that energy necessary to raise the common vegetables to supply the family table, and are satisfied to live on hog and hominy the year round. The race is not won by the sluggard, but by him who is ever on the alert and ready to exert both his physical and mental powers. And while much has been accomplished by our

leading apiarists in the science of bee-keeping, there are hundreds of smaller lights scattered throughout the country with a few colonies, with their untiring zeal and energy, who have added much to the knowledge and progress that has been made in bee-keeping, and the result is that the sweet-silvered voice of the patent-hive vender, with his moth-trap, is no longer heeded in our land, except by him who reads not. In our discussions I have observed that we are more inclined to talk of our success than our failures, when often our best lessons are from our failures; then let us not hesitate to give our experience wherein we failed, that others may benefit thereby. In my observations there is no industry in this country in which there has been more progress made in a decade, both scientifically and practically, wherein the product comes from the soil, and if a majority of our citizens could be induced to keep a few colonies of bees, there would be much wealth gathered annually which is lost, to say nothing of the effects that a good dish of honey has upon the family socially, for we are all prone to get a little sour at times and need sweetening up, and if it could not be done with honey, a few stings would make us forget ourselves for the time being. I would call to remembrance the death of the Rev. J. C. Bellman, the first President-elect of this association, hoping that this society will remember him with appropriate resolutions. While the Agricultural College of Indiana, Purdue, is experimenting with all the domestic animals, and has, so far, omitted the bee, I think it would be well for this association to call the attention of the board to the fact. For the financial condition of the association I refer you to the report of your Treasurer, Mrs. E. Stout. And for the general work of the association, to the report of your Secretary, Frank L. Dougherty, who has labored industriously for the up-building of the association. There has been a move in some of the other industrial associations of this State, as well as this one, to obtain an appropriation from the State, that they might be able to give their discussions to the masses fresh from their meetings. I would therefore recommend co-operation with those societies in an effort to procure such an appropriation. In conclusion, let me congratulate this association on the great stride that has been made toward the improvement of the honey bee, and while we have not been able yet to breed them without a sting, or with a tongue long enough to reach the honey in the red clover on our deep, rich soils, we have lessened the propensity to sting, and are increasing the pasture by the cultivation of many honey-producing plants, and considering the time since the experiments commenced, I think the improvements in the bee have been equal to the improvements in any of the domestic animals.

The Secretary read the following article from Professor Cook, of Lansing, Michigan:

LANSING, MICHIGAN, January 5, 1882.

Mr. President, and Gentlemen of the Indiana State Bee-Keeper's Association:

Allow me to thank you for your kind invitation to attend your annual meeting. It would have given me great pleasure to have met with you, and I much regret that I am unable to do so.

Those of you who know Mr. James Heddon, of this State, know that he is one of the most thoughtful, studious, successful, and one of the best informed apiarists of the world. Speak with him on almost any subject connected with bees and bee-

keeping, and you soon find that he has been there before and picked that bone clean. I know that it is rash, and as frequently presumptuous to attack such an one, though it is very important if he is in error. So I will not attack, but briefly give my reasons for thinking that he is wrong in his views as to

CLIPPING QUEEN'S WINGS.

Mr. Heddon says that this act makes the queen distasteful to the other bees, and is a hindrance in management of the bees.

I have practiced this method of bee management, now, for years, and have yet to see the first evidence that the bees take umbrage at the proceeding. After the queen ants have paired, the other ants bite off the wings. The ants never need to swarm, and so the queen never will need the wings more. So the ants, the better to keep her at home, or else to save the expense of nutrition that would be expended in nourishing the wings, now useless organs, cut them off. So we see that analogy and observation refute the first point.

It seems to me that the second point is easily disproved, both by practice and by reason.

If the queen's wing is clipped and the bees swarm when we are away from home, we will lose only the queen at most, and in most cases she will also find her way back to the hive. Even if she does not, we can find her upon our return by carefully looking about the grounds. The ball of bees about her are quickly found.

If we are at home and the bees swarm, we have but to go out and catch and cage the queen, put her in the new hive, which for the time is set on the old stand, and the work is done. What a saving of time is here. But suppose several swarms have issued at once, then the saving of time is immensely increased.

I presume that some will remark that, in case several swarms issue at once, which is the wont of bees, and we have missed some swarm, and a young queen comes forth, then we lose all, and a most grievous loss it is. But second swarms are not desirable, and if we so lack vigilance as to permit them, we need something to make us more watchful. If the danger of losing several swarms at one time makes us more watchful, then tally one more for clipping.

Mr. President, I am aware that I have not thoroughly discussed this important question. I have only aimed to start the discussion, and hope that your Association, from your experience, will put in the warp and woof.

Let me say that at our last meeting, which was one of the best we ever had, we had no essays, but depended entirely on impromptu discussions.

I hope that you will agitate the matter of statistics. Let us each and all do all we can to make this matter of statistics a great success. We have a most excellent committee; let us do all in our power to aid them in their important work.

Again, the North American Society ought to be a power for good in the interest of bee-keepers. It is a very mistaken policy to do anything that will weaken the influence of that organization. It can accomplish much that can not be attained in any other way. Had it not been for this organization we very likely could not have sent queens by mail the past few years. Now I hope that you, and all other State associations, will send delegates to this North American Association. All the great interests of the country have their National and International Associations;

it behoves the apiarists to be abreast the others. I would have individuals, District Associations, State Associations, Interstate Associations, and above all, the North American Association, all working together to one grand end, the perfection of our art. Happily, civilization is opposed to selfishness. We are all interested in our neighbor's success. Let the Los Angeles bee-keeper put up his honey in a slipshod shape, and the Maine bee-keeper loses by the act. Selfishness, no less than highest ethics, Christianity, urges us to act as one man the continent over.

Please excuse this hastily prepared paper. I could hardly find time to write at all.

Wishing you a most profitable meeting, I am most cordially and fraternally

Yours,

A. J. Cook.

DISCUSSION ON CLIPPING BEE'S WINGS.

Dr. O'Rear. I clip all my queen's wings. It pays to clip their wings, from the fact that one is not at any trouble afterwards. As far as injuring the queen is concerned, I can not see how it is. I know that some say it will injure the race, but I do not believe a word of it, as the queen fertilizes only once in life. I do not see how it can affect the bees afterward. There is no law in physiology that would demonstrate that, I think.

Mr. Davis. I am a bee-keeper in a small way. I used to clip the wings, but I could not keep them for any length of time. I do not know what was the reason. Since I have discontinued it I have had no trouble in keeping my queens.

Mr. Muth. I have no difficulty in keeping my bees. I am not in the habit of clipping the wings. I have several times purchased queens whose wings were clipped, and found no difficulty in keeping them. I am of the opinion that it does not injure the queen to clip the wings.

Mr. Lemming. I would think, in reference to this gentleman's experience, it more than probable he injured the bee in clipping. I have practiced clipping bees to good effect, and where clipping is properly done there is no injury. I do not think it will do to squeeze the queen in performing the operation.

Mr. Mason. I would ask those gentlemen, who have experience in clipping the wings of queens, what period is best?

M. Muth. Any time after fertilizing.

Dr. O'Rear. I have clipped the wings of queens successfully when they were running carelessly up a pane of glass. By this method there is no danger of injury. Some let her turn around in the hand, and I think she is injured in this way.

Mr. Muth. Queens should not be taken out in a careless manner. When she gives a note, or pipe, she is alarmed. If you will notice, it will not be long until bees will collect around her. Whenever the queen is alarmed she is in danger.

Mr. Daugherty. I have practiced clipping the wing for years, and I don't see that it has any effect whatever on the life of the queen or the conduct of the bees toward her, only when neglected. I find that with clipping the wings, where they have commenced swarming, and failed to be taken care of, the queen is more liable to be superseded. I am satisfied there is no danger in taking them up, but we do not want to take hold of the abdomen, but take hold of the thorax and it will not

hurt them. I have clipped fully 500, and have not hurt any; I do not follow her over the combs, but take right hold of her.

Mr. Muth. Some people get hold of queens and they manifest no alarm at all; it is only the manner in which we get hold of them; we must get hold of them without squeezing.

Mr. Daugherty. I coincide with Brother Muth.

Mr. Davis. It seems there is much danger in picking up the queen by exciting her; if the queen is excited there is more danger of her being killed.

President Cotton. Bees are very sensitive to a jar. I would like to ask if it is practical for farmers to keep bees that are not regularly in the business?

Mr. Muth. We do not speak of farmers, but bee-keepers, but it certainly does not damage him to handle bees.

Mr. Buntain. We have heard pretty well from those who practice clipping the wings, but we have heard but little from those who have practiced otherwise; I have tried both; everybody might know, as Mr. Muth says, that they could kill the queen by handling; we should be very tender in handling the queen, whether on glass or not. I have got Italian bees; the first queen I lost; the other one barely kept alive through that cold winter; she was finally superseded by a nice young queen. I had some that did equally as well that were not clipped; I would like to know what time to clip the wings. I believe it is a mooted question when the queen can be fertilized; I would like to have some information on this.

Mr. Rand. I think the clipping of the wing is no damage, but when they come out to swarm we must take care of them; if the swarm comes out and the queen can not fly, she will be lost; the bees turn back and go in without her, and she is lost.

Mr. Muth. Whenever we take the queen out of the hive, she must always be in company with other bees. For instance, nobody would keep a queen for five or six hours in a cage without any bees with her. Queens suffer when left alone; they must have accompanying bees.

Dr. O'Rear. As to Brother Buntain's question, queens are fertilized on the wing; after the fertilizing they do not need to fly, and I would clip them at once, or within a few days.

Mr. Buntain. We use to have to serve seven years, but I would like to take short cuts. I want to hear others talk, that I may learn quickly.

Mr. Mason. I read not long since that it was not best to raise queens artificially. It is my habit to raise my queens, and not let my bees swarm. Some think that swarming is the best method of increasing the stock of bees, but I prefer dividing. I would like to hear whether it is a damage to the culture or prolificness of the bee to raise them artificially.

Mr. Daugherty. The question before the house is clipping the wings of queens.

Mr. Elliott. I have been raising for five or six years, and do not practice clipping the wings. I have had good success not losing them in the winter.

Mr. Shaw. I use to clip my queens' wings, and found some difficulty. Sometimes two or three swarms would come out, and I would lose them. I have had five or six swarms to come out before I could get them hived. If the queens' wings are clipped we are liable to lose her at swarming, unless we are there to watch her.

Mr. Daugherty. I would like to ask what difference it makes to clip the queen

if they are not there to watch the bees. Even if we have to raise another queen we do not lose the bees. If we are not there they are going to go if the queen is not clipped. I have had half dozen to go back, each one going back into its own hive.

President Cotton. Four-fifths of the people here have not turned their attention wholly to bees. Most of us have a few horses, cattle and sheep; we can not always be with our hives. If the swarm comes out with a clipped queen they go back in a few minutes. If the queen is not clipped they will settle on a limb, and stay there sometimes till the next day. I have hived as many as three within an hour off the same limb. My observation is, that to a man who has a mixed husbandry it is more convenient for him to let them swarm. I let the bees take their natural course, and I succeed in this mixed work better than clipping.

Mr. Daugherty. The object in clipping the queen's wings is to prevent their leaving when one is not there to watch them. We hear much complaint of bees running off. Many colonies are lost annually. Our President's success is not the rule.

Mr. Shaw. If the queen's wings are clipped and the bees come out and find they have no queen, they become angry and sting everything around them. I find less trouble to let them all come out and settle on a limb, when they can be hived without much trouble. I have 150 stands of bees and have no trouble in telling when they are coming out; I do not have to watch them. If the queen does not come out with them they soon go back to find her.

Mr. Muth. If I have no one to attend to my bees I go to work and clip them, so if a swarm comes out they will go back again. I can save the absconding of a swarm by clipping the queen's wings. It may be in some cases beneficial. When the hive is on the ground the queen is apt to crawl back; if she can not get up she is liable to get lost.

Mr. Shaw. I do, sometimes, clip my queen's wings. If a young swarm comes out, I catch her the next day and clip her.

Mr. Hodges. When my bees swarm, if the wings are clipped, I never lose them, but if they have their wings, I lose them.

Query by T. J. Cook. Are queens reared under the impulse of swarming fever superior to those raised otherwise?

DISCUSSION.

Mr. Muth. We have in many instances raised artificial queens, which are just as prolific as any, under favorable circumstances. If we do not intend to feed, we should never raise queens until the honey season, and only in warm weather. All queen cells should be made in a full colony. My experience is, we can raise just as good queens artificially as under the swarming impulse, by giving the proper care to the work.

Mr. Daugherty. I think, on the face of it, it is a catch question. This question has been discussed for the last two years, on account of the dollar queen business. I agree with Mr. Muth, that just as fine queens can be, and are, raised under the artificial as swarming process. However, this should be done in hot weather, and during a good flow of honey, or plenty of feed.

Mr. Wright. My experience in raising queens is that the most prolific queen produces the best bees and most of them. My best honey gatherer was raised artificially, and by a weak swarm, early in the spring, and was raised under very unfavorable circumstances.

Mr. Lemming. Is there any difference in the life of a queen raised artificially or by the natural process?

Mr. Muth. Queens raised artificially are just as good as any raised in any way. We can raise first-rate queens artificially, which the bees can not always do.

Mr. Fountain. Which, in your experience, is the best queen—the large or small queen, of the same strain of bees?

Mr. Muth. We have small queens sometimes that have been just as prolific as larger ones, and even more so. If she is small, she may be well developed, and do splendidly.

Query. Are the Cyprian bees as easily handled as the Italian?

Dr. O'Rear. Those that I have are the gentlest bees I ever saw. I have Italians, but these are more gentle.

Mr. Muth. I have a few swarms of Cyprian bees that are pure. They are very cross. I have opened the hive several times to get out a queen, and they do not make any fuss about coming out, but come a little stronger all the time, and when they commence they sting every one of us. I have tried smoke without success. Neither does sweetened water seem to be available. From the same stand I have raised young queens which were fertilized by Italian drones. These are splendid, having a deep yellow color. They are almost as easily handled as the Italian. I prefer them to the Italian. I have, also, in the latter part of the season, raised a number of Cyprian queens, but I prefer a mixture with the Italian.

Mr. Catterson. Is there any danger of Italian and Cyprian queens, and also the drones of these two kinds, by keeping them together, giving us a hybrid?

Mr. Muth. You may raise some pure Cyprian bees, but if you have plenty of Italian and Cyprian drones, you will have them mixed. If I buy from any body and he sends me this mixture, I should be highly pleased. It is a fine color and a very desirable mixture.

Mr. Davis. Friend Gulley and I have several stands of Cyprian bees. We got the queen of Mr. Alley. They are decidedly the most quiet bee we have got. We can handle them without smoke, and take the frames up and carry them half a mile with the bees on them. I do not have to use any smoke with the Cyprians, but do with the Italians.

Mr. Muth. Can you set the frames down with the bees on them?

Mr. Davis. Yes, sir.

President Cotton. I have a colony of bees which look very much like those of Brother Muth's. They may be Italian. When they swarmed they went into the hive where the old comb was. That colony this year has thrown off ten swarms and 155 pounds of honey. After the middle of August I quit hiving. They are a hybrid, and seem very ill. There is another colony close by from which I got only fifteen pounds of honey.

Mr. Muth. If you get behind a bush or anything else, the Italian bees will stay away, but the Cyprian won't; they will follow down four flights of stairs.

Mr. Lemming. Did you get your bees from Mr. Jones?

Mr. Muth. Yes, sir.

Mr. Rabb. I got two colonies of bees a year ago of Mr. Daugherty. One of those colonies seemed rather weak, but when it became strong they were very cross and difficult to manage. The other was more gentle and easily handled.

Mr. Daugherty. In reference to what Mr. Rabb had, these were shipped us. We could not tell the marks by the letter. We knew that some Cyprians were in the package. He wanted some and took them along. I think they were good Cyprians.

Mr. Rabb. I would rather have a hybrid than a mean Cyprian.

Dr. O'Rear. They are not Italians, they are surely Cyprians or crosses. I am of opinion they are hybrids. Crosses make a nice bee.

Mr. Catterson. Mr. Muth at our last meeting gave notice of a box for hiving bees. I would like for him to make statement again; it would be of interest to most of us who are small bee-keepers.

Mr. Muth. This box of which he speaks consists of a box about ten inches wide and fifteen inches long. It is without the ends, and sides are perforated. A socket is placed on this in which a pole can be placed. When a swarm comes out and tries to settle on a limb, hold the box under the limb and the bees will generally settle in the box. I tried this with complete success. The queen comes in and the bees will follow suit. We can cover the box and set it on the ground, and if desirable sprinkle a little water over it and carry it to the hive, which should be in readiness to receive them. It is a very nice arrangement and saves climbing trees.

Mr. Catterson. I made a box, after hearing Mr. Muth's experience. It is a box similar to the old box hive with the mouth up, with two handles for reaching up. I can take them in a box much quicker than to wait until they settle.

Mr. Muth. I have hived quite a number of swarms in this way, and find no trouble. I think it is beneficial.

Mr. Kennedy. I had some trouble a few years ago. They would try to fly away, and nothing I could do would stop them. We threw gravel and dirt among them, but it had no effect. I went to the house, opened a hive, procured a piece of comb, and stuck it on a pole and held it in their neighborhood, and in ten minutes' time they were on the pole. I carried it to the hive, and never had bees to do better.

President Cotton. There is danger of breaking the comb in this way.

Mr. Muth. If a regular swarm, and the queen accompanies them, they will generally settle on the nearest object. If they are Cyprians they will light out before you know it. By taking a looking-glass, and throwing the rays among the swarm, it will make them settle without mistake.

Dr. O'Rear. My wife tried this looking-glass experiment without any success whatever. I tried the same, but they paid no attention to me. I gave up the looking-glass and commenced whistling, when they all settled.

Mr. Rabb. Which is the best—artificial or natural swarming?

Mr. Davis. All the handling of bees I have done is by artificial swarming. I think it is preferable to the natural process.

Mr. Muth. My manner of keeping bees is by artificial swarming. If I get a natural swarm, it is an accident. I think this is the best way to increase our stock. I would in no instance be in favor of natural swarming.

Mr. Catterson. In regard to the farmer's interest in raising bees, would you recommend artificial swarming in case you get only fifteen or twenty pounds of honey—honey not being the object, but the increase of bees?

Mr. Muth. It appears to me that when we keep bees, the honey should be the object. If not we are always wrong. I am only advising bee-keepers. If he wants to try his hand at artificial swarming let him first get control of his bees. If you don't understand this process you had better take natural swarms.

President Cotton. The first thing is to study the physiology and habits of bees, and without that he should not undertake the artificial process, but let them take their course as in the tree. The physiology, habits and customs are very essential to the bee-keeper.

The association adjourned until 7 o'clock P. M..

EVENING SESSION.

President Cotton in the chair.

"Wintering Bees," the regular subject for discussion was taken up.

Mr. Muth. This is quite an item for all of us. It appears to me that we have always succeeded if we keep our bees warm enough and dry, and plenty of honey. This is something that we have not always succeeded in. If we have got good covering on top of our bees and have an air passage which keeps moisture from below we generally succeed. We find generally the combs are mouldy just about those spots where the bees cluster. If we examine closely we find it damp because the bees generate considerable moisture. If the moisture can pass out it is best. If we put honey in a warm, damp cellar, it will not keep, but it will keep in a garret no difference how warm. If we have honey enough in the hives and dry enough, we generally keep them over winter. I use for my covering a straw mat an inch thick, which retains sufficient heat for the bees. Above the straw mat I have some holes bored to admit of ventilation; by this method I succeed in keeping them over winter. The main secret in keeping bees in winter, is to give them plenty of honey and keep them dry and warm.

Question. What would you consider plenty of honey?

Mr. Muth. Twenty or twenty-five pounds.

Dr. O'Rear. Brother Muth's plan is out of doors; I winter in the house. I believe if we have a good house we can winter on three or four pounds of honey; the house will save the expense of building. When my bees have been in the house and kept dry I have had no trouble, with the exception of two or three winters ago, when everybody lost bees. One winter I took my bees into the cellar; I had a tile ditch under it, but it rained so that water arose in the cellar. I expected my bees in there to die, but they did not; I do not know whether it was the ventilation or damp below. I wintered my bees one winter in the bed-room, keeping them dry, and never had bees to winter better. I would have a house, even if I had to put them in the parlor. An even temperature in the house is better than out of doors, and they consume less honey.

Mr. Gully. Do you mean to winter bees up to the time of gathering honey, in the spring, on five pounds?

Dr. O'Rear. Yes, I say so. When I took them out last spring to remain out, instead of eating to the center, which they generally did, they had only eaten an inch around the edge. The temperature was 35° or 40°; they did not cluster so much. My bees began to brood right where they had clustered. If there comes a nice day I set them out to fly, and then put them back again; it is a little trouble, but it pays.

President Cotton. What time would you take them out in the spring?

Dr. O'Rear. I would take them out about the time the maple begins to bloom, which time varies, sometimes earlier or later, sometimes as early as February.

Mr. Shaw. I winter my bees in the house. I had some difficulty in wintering in the house until I got my house and hives fixed right. I first chink them up tight, like Brother O'Rear, but the hives burst. I left the lower end open and they did a little better, but there was too much dampness; then I left open above and below and have had good luck, and have never had mouldy comb or lost any bees since I have been working in that way.

Dr. O'Rear. I keep the house perfectly dark, keeping the door closed so nothing will interrupt them. The bees, by this means, are perfectly quiet.

Mr. Davis. How much honey does it require to the colony to winter them?

Mr. Shaw. I put away seven stands and took them out about the 15th of April, and used from five to seven pounds.

Mr. Mason. You speak of ventilating from above and below. Does this make a perfect draft through the hive?

Mr. Shaw. I have an inch hole above and below; wire screen on the inside. This does not give a direct draft. These are in the brood chamber. Last season I had 128 stands, and did not have any mouldy combs. To put 150 to 200 stands in the house without this ventilation, they would get too warm. When a day comes so they can fly, I let them out. My bees have been up eight weeks already.

Dr. O'Rear. I do not think Mr. Jones takes his bees out from the time he puts them up in the fall until the spring.

Mr. Muth. It is quite a job to carry out 150 stands. I saw, some time ago, an arrangement a gentleman had for conveying his thirty-four hives to and from the house. He had a little railroad out to the garden. On this he could roll them out easily, on nice days, without any great amount of labor. It seemed to work splendidly, but our man met with a bad mishap. He lost most of his bees in spite of his arrangement. I think it is not good for the bees to be in the house and then brought out, as many will fly away, and often perish.

Mr. Lemming. I am truly surprised at Brother Shaw's plan of wintering his 150 colonies in the house without creating heat, and without the bees becoming restless and uneasy. By invitation I visited his house to-day; it is 9x10 feet. The thought struck me that 150 colonies in such a small space during the warm weather a few weeks ago was something remarkable. I can say that his statement is correct in regard to his losses by this method. There was some frost around the ventilators. The bees seemed in a torpid condition, except a low hum and lulling noise. They seemed in good condition and perfectly dry, and no dead bees in the hive or on the

floor. They were stacked up five hives high, and the ventilation of which he speaks is one of the reasons which caused them to be so quiet. I have been in several bee houses, but this is the best I ever saw.

Mr. Davis. A friend of mine in Illinois had 235 stands of bees. They created so much heat he had to cool them off every night.

Mr. Lemming. The temperature of Bro. Shaw's house was mild—not, perhaps, as high as in this room at the present time. Everything was neat and dry. He has a passway between the hives. The building adjoining was open, so as to admit light. There are several brethren here who desire me to give some explanation why bee swarming might be prevented through the whole season. It is a new thing with me, and the idea originated with Quimby, who makes a non-swarming hive. Last spring I concluded I would see if I could handle 300 stands of bees through the season without swarming. I commenced in the spring, handling my neighbors' bees in Tipton, Hamilton and Madison counties. I was to have complete control of them, and run them exclusively for honey, and not permit them to swarm, and see how much honey could be had from each colony. When the bees were ready to swarm, I opened the hive, and where the main heat and cluster and most queen cells were I would take those out which were in the center of the brood chamber, and the brood just hatching I would place in the upper story, and put two frames of foundation with the two frames of brood, which would be hatching in three or four days. By doing this, I would arrest their swarms. At the end of ten days the two frames of the upper story were full, and the bees outside the division boards and the comb built up against the lid. This I would cut out. When the hive was becoming too full, I would open it again and take out other frames from the lower story just beginning to hatch, and put up other frames above. By doing this, I prevented swarming. Where the sun is too warm, I would build a shed over them. Where they were very much disposed to swarm, I would give more room. This succeeded pretty well. I believe they can be prevented from swarming, if it can be accomplished in season, but no time must be lost in doing it. This is a new matter, and some, no doubt, will oppose me in it, but the day is coming when this should be pushed a little farther, and I believe success will be ours.

Secretary Daugherty. It seems to have been the desire of Bro. Lemming to prevent swarming with regard to honey. The object is to prevent a colony of bees swarming with all the stories cram full. I used the Quimby hive for several years. It did very well so long as it had room, but when crowded they would swarm from two direct causes, inability for the queen to lay, and space to lay up honey. This causes a fever, or heat, among them. We want all the space full, and at the same time prevent swarming.

Mr. Lemming. If you want to be a farmer, be a farmer; if a bee man, be a bee man. Always attend to your business strictly.

Mr. Muth. If the queen does not have room below she will go up. All our honey should be extracted and kept by itself. I would not give much for clover honey if he has got it all mixed up. I want clover honey kept by itself. Let the cells be filled and stand long enough for evaporation, and you can keep honey in

any place if you keep it warm and dry, but if you let it all be capped and then extract and cork it up, it will always expand and have a sour twang to it, but let it stand awhile and then bottle, it will retain its sweet flavor forever.

Mr. Daugherty. Four years ago we had plenty of honey; the past season the flow of honey has been poor. The object, when this immense honey flow comes, is to prevent this fever.

Mr. Lemmitg. Some will not have it extracted until it is sealed up. I recommend extracting as soon as the cap is full, putting it in a dry, warm place, and it will keep for years.

Mr. Shaw. I have not noticed, when I set my bees out, about their flying too much. I have some dead bees in the house, but not in the hive. If they get sick they crawl out of the hive to die. Bees do not winter well if they get too warm. The first thing in the morning I go to see my bees. If they have not ventilation enough I give them more. If the weather is warm, I take the top off and give them a good airing. I attend to them every day the same as I would my horses. I do not keep my hives tempered by a thermometer. A cold night, like it is to-night, I would leave the inside door open so as to get air. I have to keep it shut through the day to exclude the light.

Mr. Kennedy. I wintered my bees in the house last winter, and tried it again this winter. I am opposed to this top ventilation, and never open the entries; if it becomes warm in the spring I take them out and let them have a fly; then take them back again and let them stay until apple blooming time. I think the trouble is in taking them out too often and early, and leaving them out; we should not take them out until they can get something to live upon.

Dr. O'Rear. Brother Kennedy and I have frequently talked over that question; at the same time he is opposed to upper ventilation; he has an A. G. Hill hive; the cap stands three-quarters of an inch above the brood chamber; it passes out of the hive; the water drips over the outside of the hive.

Mr. Kennedy. Brother Hill uses the same hive I do; over the second box we have a small board covering the hole. Brother Hill takes that off and lets them come up between the cap and the brood chamber; the water runs down outside, between the brood chamber and cap. I close the top of the caps with paper; but little ventilation can get through this.

Mr. Mason. There is a difference of opinion with bee-keepers in regard to wintering bees, and it has troubled my mind as to what was the true method of wintering them. I have been listening with interest to-night to those discussions; some advocate out on the summer stand, while others have been more successful in the house. Brother Daugherty winters on the summer stand, and I do the same with good success, except the cold winter, two years ago, I lost all out of thirty-seven but one. Two years ago in January, when the mercury marked ten degrees below zero, a friend cut a tree for rails; a limb of the tree had something white on it; he thought it was a punk; on cutting this tree he was surprised to find what he supposed a piece of punk, was a colony of bees. He got seventy-five pounds of honey, and found eggs and larvæ in good condition. This was exposed to that extreme temperature. I am of the opinion that if bees are in a good, healthy state, they will winter anywhere.

Mr. Daugherty. I have examined this upper ventilation year after year. There is nothing better than a hive standing out of doors. Notwithstanding all this, don't you think the bees are hardy, any how? I never have lost 10 per cent., except during the fatal winter mentioned above. They must, indeed, be strong and healthy to stand the punishment sometimes given them.

Mr. Davis. Some of our friends thought we had better go back to the old log gum and pry the top off. Two years ago I started in the winter with thirty stands of bees, packed in chaff, packed around the box about two inches thick, and five inches on top, and covered over it. They went through the winter, sixteen out of thirty. This winter I have not lost any packed in chaff out on the summer stand. I make it a point to have upper ventilation all the time. That is about the best thing to winter bees. I ventilate now with a frame, tacked together, with coffee sack put on that, and chaff three or four inches. I put this sack on the under side of the frame. This coffee sack bulges up with three or four inches of chaff on the top of the frames. You sometimes find a little frost on the top, but on the under side it is dry.

Mr. Muth. I have eight or nine chaff hives—walls three or four inches thick. I have got twenty double-walled and floored hives, although with single-walled hives I have been as successful as any one, but I lost two years ago. It is ten years since I commenced with double-walled, and I can not see that they are worth any more than single-walled hives.

President Cotton. I use the old Quimby hive. It has several holes for ventilation. I noticed the bees were dead in one. I took off the cap and found they had closed up the entrance and smothered. I have wintered my bees in the cellar, but not to good advantage. I set my colonies up close together on scantling 2x4, covering them with straw. If it is wet I have been troubled with mouldy comb. I generally winter on the summer stand. I move them up within a foot of each other, front to the south, putting straw on the north and between the hives. Two years ago my bees commenced dying in October. I attribute it to bad honey food.

DISCUSSION ON BEE PASTURE.

Mr. Kennedy. We lack bee pasture in this country. It is a question, "How are we to get more of it?" unless we can encourage our farmers over the country to raise more clover? That will make hay for the cattle and horses, and honey for the bees in the summer. I think if every bee man in the State of Indiana would spend what amount of money he can conveniently spare, for seeds that produce honey plant, sowing it where he could, it would be a good thing. We have seen the sad effect of sunshine on the southwest side of apple trees about three o'clock in the afternoon. I would recommend planting on that side sweet clover. It would protect the tree to some extent, and would make good pasture for bees. We have got to produce this kind of an argument to get people to plant these things. If we can induce farmers to exterminate such noxious weeds as dog fennel, jimpsum and ragweed, and plant other kinds, let us do so. This year let us all plant five pounds of Alsike clover seed, and throw a little here and there. It will pay everybody. It makes splendid pasture and as fine hay as I ever got in my life. It is much better than red clover. We can also plant hemp. There is no plant that makes more pollen,

and I have seen two bees on the hemp to one on sweet clover. Besides, the seed is good feed for birds and chickens. I hope every bee-keeper will try and sow something of this kind.

Dr O'Rear. I agree with the remarks of Bro. Kennedy. In every neighborhood there are farmers who let their fence corners grow up with weeds. The bee-keeper could confer no better favor on those farmers than to go along and sow clover in his fence corners. That farmer will never cut it down—it will improve the country, and better the bees. We can also, to good advantage, sow along the bluffs of creeks and sides of railroads. I would sow it in every direction—it won't be much trouble. Once get it in the country it will never get out. It is a biennial plant, and cows will not hurt it. The more you crop it, the more it spreads out. If you get the people to believe that cows will eat it, they will sow it. It is better than many other things they use for hay.

Mr. Davis. Sweet clover does not grow around fence corners as well as some seem to think. We had a little patch, last summer, on which the bees worked considerably. I think it will do well if we can get it started.

Dr. O'Rear. All along the Cincinnati & Hamilton Railroad, and all along creeks, are fine patches of this clover. It will not grow so well in sod.

Secretary Daugherty. I have planted acres of it in the eastern part of our city—it grows right up in the sidewalks. I do not see why it does not succeed.

Mr. Rabb. I do not succeed well with it.

Mr. Lenning. Mr. Davis seems to think it will not grow in sod. I was in Illinois last summer. A friend of mine had twenty acres of clover. It started of its own accord, in blue grass sod. Thirteen acres out of the twenty was a perfect sod.

Mr. Muth. Near Cincinnati we have an abundance of sweet clover growing. It is the best honey plant there is. It will grow almost anywhere—in old brick yards, or stony ground, or along railroads. The Alsike clover should be sown more than it is. It is as good food as red clover, grows as easily, and very rank. Three years ago a great storm blew through Cincinnati. A few days before that storm the Alsike clover was full of bees. In a few days after I never saw any more in that clover field. Perhaps the state of the atmosphere had something to do with it. It is a good clover, and yields abundantly. Perhaps there is no better honey-producing plant than mignonette. It is raised in gardens generally, and cultivated extensively by bee-keepers.

President Cotton. The Alsike needs a damp soil. The sweet clover will succeed in most any place, as it has a long tap-root.

Mr. Muth. The raspberry is splendid for producing honey, as is also bass-wood.

Dr. O'Rear. We should plant bass-wood, as its flowers yield an abundance of good honey. It pays a large per cent. for the planting by the honey it yields.

Mr. Mason. If the farmers would change and sow Alsike clover, I think it would be beneficial as a fertilizer, and it makes good pasture. The Alsike seed costs, at present, twelve dollars per bushel. The object with me is to get something that will fill up the season from July to September. I have not succeeded with sweet clover. If farmers would sow Alsike, instead of red clover, we would have no trouble at all.

Mr. Davis. I had a patch of red clover and Alsike side by side; I turned my sheep and horses on it, but they would not touch the Alsike until they had eaten the red clover, when they went to the Alsike.

Mr. Muth. I have known just the reverse.

Mr. Davis. The Alsike was on black ground and the red on upland.

Mr. Rabb. In the English clover the seed is in the first crop and red clover in the second. In black ground the Alsike grows rapidly. I have no success on high ground.

Mr. Muth. My Alsike was on high ground.

Mr. Hockett. Does Alsike make good sweet hay or does it slobber horses?

Mr. Kennedy. I never saw horses slobber on either first or second crop. I feed my milch cows on it. Cut it three or four times during the year, beginning at one side of the field, and by the time I get over it is ready to cut again; by this means it keeps green all the time. There is a lot of fresh bloom following you all the time.

Mr. Cotton. Will it re-seed itself or not?

Mr. Kennedy. Mine did on the black ground but on the high it did not.

Mr. Davis. Is there any dust on this clover?

Answer. No.

Mr. Muth. Black Locust honey is perhaps the best honey we have. In our part of the country it blooms in May. Honey taken from this flower is perhaps a little darker cast than this horsemint honey on the table. At the time the locust blooms our bees are not working in full strength; another thing, the weather is sometimes unfavorable. The locust bloom is followed by the apple, which produces a fair nectar.

President Cotton. I find locust is quite a harvest for my bees in the way of gathering honey.

Mr. Fells. Locust is a valuable honey plant. I have four acres about half a mile off from which my bees carry in a great deal of honey. The locust is also valuable for fence posts. The black willow is also valuable to the bee man as bees can collect a great deal of honey from it. Raspberries are good, and grow easily when started, as also bass-wood, poplar, clover and soft maple.

Mr. Hackett. Is there any difference in varieties of raspberries as to the yield of honey?

Mr. Fells. I see different varieties, and see bees working on most of them. I do not know that there is any difference. They also gather considerable honey from the blackberry, but I think more abundantly from the raspberry.

Mr. Muth. The raspberry is the best of honey.

Mr. Thompson. I am not a bee man, but I am interested in your discussions. It seems to me that it would not be necessary to steal around on a man's farm in order to get your pasture. If every farmer could be convinced, he would furnish the Alsike clover seed and sow it for his benefit. I believe it can be raised in connection with our dairy interests; I never saw it growing. Some one remarked eight pounds to the acre. That, I think, would be rather expensive. How long will it retain and hold in the ground?

Mr. Kennedy. I have not had much experience with Alsike clover, only in my orchard. I got two fine crops off of it. Next year the blue grass smothered it out. It will stick well through the winter.

President Cotton. Red clover is perennial, and lasts only three years. The Alsike is a cross between the red and white, and will follow close after them.

Mr. Mason. My first bloom for bees in the spring is red haw. They do not like anything better; I do not except the raspberry. The Chickasaw Plum is wonderful to bloom, which is fine for bees. It is worth raising for the bloom as well as for the plum. Notwithstanding the depredations of the curculio, there is always enough left for a good crop. I am growing about fifty trees. It is much better than the Wild Goose for prolificness in bearing.

Mr. Thompson. In our stock raising business we like to have grass for our cows as long as we can. Will this clover produce a crop of seed that is profitable more than one season?

Mr. Kennedy. I never have saved any seed of it. The first crop, if run through a huller, I think would yield an abundance of seed.

Mr. Thompson. Does it seed the second year?

Mr. Kennedy. The first crop of the second year will produce as much seed as any.

Mr. Mason. Suppose you sow sixteen pounds of red clover to the acre; your red clover cost you seven dollars per bushel. The Alsike will go as far again and cost twelve dollars. By the operation you save two dollars. One pound of Alsike will sow as much as two of red. I think it is cheaper seed than the red to sow. Unless there is a demand it is not likely to fluctuate in the market and red clover will likely go to eight dollars per bushel before seed time.

Mr. Davis. The Alsike is a better fertilizer than red clover. The red runs down only one root, while the Alsike has four or five equally as deep, if not deeper.

President Cotton. I want to call attention to our common crab apple as a blossomer.

Mr. Muth. They work considerable on the crab apple. I have several years made honey from fruit blooms, which was pleasant to the taste. Six or seven years ago I made 400 pounds of apple blossom honey. Peach blossom honey will spoil apple blossom honey.

FERTILE WORKERS.

Mr. Mason. I would like to know what is the first evidence of a fertile worker?

Mr. Muth. Swelling out of the cell cuppings. I have seen one-half to a dozen eggs in a single cell.

Mr. Lemming. Will they lay more than one egg in the cell?

Dr. O'Rear. They do, several, but not regularly. Eggs laid in the drone cells do not hatch, while those in the worker's cells do.

Adjourned to 9 A. M.

THURSDAY MORNING SESSION.

Convention met at 9 o'clock, President Cotton in the chair.

Committee report on premium list was referred to a committee consisting of Messrs. O'Rear, Muth, Cox and Daugherty, who were instructed to consult with the State Board as to premiums at the State Fair.

DISCUSSION ON AWARDING COMMITTEE AT FAIRS, ETC.

Mr. Muth. In awarding premiums we should have in view the product and not the machine with which the product is produced.

Dr. O'Rear. The men who are selected should be impartial, and not interested in the manufacture and display of any article on the occasion, yet interested in bee culture.

Mr. Kennedy. They should be familiar with the apiary, and people that have an eye to business.

Mr. Daugherty. We have no people but what are prejudiced more or less in this subject of hives. I advocate the Langstroth hive, while others favor another kind.

President Cotton. The Wool Growers' recommend one man, and he be an expert of sheep. I think we should have the same kind of an expert in the matter of bee business.

Secretary Daugherty. I would change and say the best section for surplus honey.

Dr. O'Rear. Would add metheglin. By adding this it will increase the manufacture of honey.

Mr. Mason. I am known at the Stock Yards as a temperance shipper, never having taken a glass of beer in my life. If the question of making metheglin was about to raise in the bee organization I would retire from the business.

Dr. O'Rear. Every year we save the capping and make metheglin; it is a good drink.

Mr. Cotton. Can a man get drunk on it?

Dr. O'Rear. No, sir.

The committee on the communication of Dr. Mason, in reference to the Tri-State Fair, made the following report:

MR. PRESIDENT—Your committee recommend that Hon. I. N. Cotton be appointed to serve on awarding committee at Tri-State Fair, at Toledo, Ohio, as suggested by Dr. A. B. Mason; and further, that Dr. Mason be apprised of the appointment, and further communicated with in regard to future action in the matter.

C. F. MUTH,

B. F. DAVIS,

SYLVESTER JOHNSON,

Committee.

Dr. O'Rear. We should go to work and organize county societies. By this means we could make a better State society. Every county in the State should be here with a representation. There is no county in the State if rightly developed but what could get ten members here. We expect in Hendricks and Boone to beat any county in the State. Each one will strive to excel the other, and by that means it will create a feeling of interest. We don't intend to stop in Hendricks county until we get every man to join it. If there is any man here to day, or in the State, and wont organize, he should not be admitted to this unless he go to the nearest society and join. I am in favor of a representative society. I do not want us to lose sight of this. Let every step be forward.

Secretary Daugherty. It is a big task to run this society unless we can get assistance from the Legislature. We have got to have more money than we have in our own pockets to assist in carrying on this work.

President Cotton. Yesterday one of our representatives of this county presented me with a skeleton of a bill to be presented to the Legislature, giving this society, with the Wool Growers', Short Horn and Swine Breeders' Associations, an appropriation to assist in carrying on the bee interest in the State. It is something we should look after.

The Secretary then read the bill under consideration.

Mr. Buntain. I suggest, if we have any lawyers in this association, that the chair appoint three to examine this skeleton and make any addition they may think best.

The committee on the death of Mr. Belman made the following report :

WHEREAS, Since our last meeting, death has removed Rev. J. C. Bellman, who was the first President of this association; therefore,

Resolved, That we recall with pleasure the deep interest he took in our favorite, the busy bee, the fitting emblem of his long life of untiring industry and application.

Resolved, That in his death the association has lost a faithful exponent of her doctrines, his family a loving and devoted head, and his associates a true friend.

Resolved, That we tender our heartfelt sympathies to his widow in the hour of her affliction.

Resolved, That a copy of these resolutions be sent to the widow by the President and Secretary.

JAMES H. O'REAR,
MRS. CASS ROBBINS,
J. W. ROBINSON,
Committee.

Dr. O'Rear. I hope counties will go ahead and organize societies, and by so doing be represented here. If we could secure the influence of some of the best men in the matter it would be to good advantage; let us push this matter with energy.

Mr. Hill. While Mr. McPhetridge has one hundred colonies, and others have twenty-five and fifty, I have but ten. I do not feel like going ahead and organizing. What good could I do? That is the objection I have to it.

Dr. O'Rear. This society can give him all the power he wants. We may appoint him Vice President.

Mr. Mason. Mr. Hill is the very man to open this up, if he has but a few stands. Putnam county is the banner county in the State. I do not intend that Boone and Hendricks counties shall domineer over Putnam.

Secretary Daugherty. The President of the county association shall be Vice President of the State association, but we can not say that they have our Vice President for their President.

Dr. O'Rear. When the society of Putnam county organized, Mr. Mason was Vice President of this association. He is Vice President for the purpose of the organization of that society. The President of any county society is Vice President of this by virtue of his office.

On motion, Mr. Robeson was made Vice President for Tipton county, and Mr. Hill for Rush county.

The convention went into the election of officers, which resulted as follows:

President—I. N. Cotton.

Secretary—F. L. Daugherty.

Treasurer—Mrs. Stout.

Prof. E. T. Cox, of California, being present, was introduced to the convention, and spoke as follows:

GENTLEMEN:—I am glad to see you all here again. I know there are many faces in the meeting who will remember me, and I see many I remember, but I can not recall the names. In regard to the subject of bee raising I am not posted. I came from California, a State that is celebrated for its great products of honey. The cultivation of the bee is carried on to a great extent, and the shipments from Williamsport and Los Angeles amount to many hundreds of tons annually. They live on the cactus and various other plants, which bloom all the year round. You have many things here that are favorable for the production of the bee, yet you do not have so many as we have in California. I hope your society will be crowned with great success, and bees flourish and bring forth much honey. I am glad of the opportunity of making these few remarks to you.

REMARKS BY PROF. COLLETT.

I was here last year. I told you all I knew about the bee then. I do not like bees; they go out of the way to bite me; I get out of their way, if possible. The money part of the bee business is not much, but they have a grand history. They are a mean, little, ugly pack, but along the whole march of history they are very prominent, especially in the sad march of Egypt they are mentioned as introduced to the land of milk and honey. The old poets sing of the bee and their good qualities, and the gentle, soft words of the old classic language is from honey. The grand poet of Roman history tells his story of the honey bee. There is something about them that is far better than honey or money—it is the tedious, long line of example and instruction we get from the bee. They are good housekeepers; they are vigilant and untiring. They will sacrifice their lives, and everything that is dear to them, in defense of their homes. They are called the faithful and honest, and possess a great deal of courage and bravery. Beyond that they are ruled by a queen, yet faithful, loving and devoted, bringing the guilty to justice—so there is not one in the human family that preaches such grand, glorious sermons as the bee. They are good engineers and carpenters, and give you a straight line. When they are preparing to swarm they send out spies to select their new home. Gentlemen, if I knew anything else I would talk on by the hour. I like the honey bee and the lessons they teach to humanity. This is about all I know.

Mr. Muth. The Professor says they do not amount to much in money matters.

Prof. Collett. I say they do not as compared to the extent in which they teach a person as to industries.

Mr. Muth. The importance of bee-keeping is underestimated by our friends. There are millions of pounds of honey produced and thousands of dollars made by our bee-keepers. I have bought from one little settlement in Florida to the amount,

perhaps, of three or four thousand dollars. It is quite a source of income. From a few parties in Louisiana I bought near 300 barrels of honey. I have paid for honey in Mississippi, Louisiana and Florida to the amount of \$25,000 or \$30,000. Let us organize and do something in this work. If the Governor comes, and has such a small idea of the bee, we will let him know he is mistaken. It is damaging to us if our prominent friends get such an idea; we know better, and should enlighten them.

Prof. Collett. I want you to distinctly understand that those gentlemen are mistaken; \$247,000 is a big pile of money, and it does not pay ten per cent. of the preaching they do. Every man who has a bee-hive there is an everlasting stream of preaching of economy and uprightness. I want to see bees cultivated, but I do not want to do it myself, as they will sting me. Children will learn from the industry, perseverance, fidelity and vigilance which they teach. Money is an important thing, and the more they are cultivated the gladder I will be. I hope Indiana will produce a million dollars of money. Your experience, no doubt, is that it will bring a million of dollars in a few years—and the time will come soon, I hope. It is well-earned money. I am glad, gentlemen, to see you here discussing these important questions.

Alex. Heron. I think your association should be congratulated in calling out Prof. Collett; he is full of knowledge and can make a good speech.

Dr. O'Rear. I would suggest that we district the State something like the Horticultural Society, that we may have better reports.

Mr. Kennedy. I think it is a good suggestion.

Mr. Johnson. I would like to ask about the subject of bees becoming indolent in the far North, gathering only sufficient for present use.

Mr. Muth. It is reported by friends I have in the South that as long as there is honey in the flower they will collect it. If they desist, it is more the fault of the bee-keeper than the bee. Bees will store honey as long as there is any. It is a mistaken idea that bees will quit storing honey at a certain time of the year.

President Cotton. I think Brother Muth is correct. I have had bees to sit upon the outside of the hive. They will work as long as there is room and flowers to collect from.

The Secretary then read the following paper on "Marketing Extracted Honey"

MARKETING EXTRACTED HONEY.

BY D. A. JONES, OF BEETON, ONT.

This is a subject in which should be taken considerably more interest than there is at present manifested in it, as it has much to do with success or failure in apiculture.

If, after the apiarist has struggled bravely and long throughout the summer to secure a large crop of honey, he places it on the market and he finds the prices low and the demand only very slight, and that he will realize no profits and very poor

remuneration for his summer's work, he will certainly lose all interest in the business and will cast his glance around for some more profitable occupation, perhaps giving up the pursuit in disgust. If, on the other hand, he sells it rapidly and at prices that will return him a good large profit, he becomes exceedingly enthusiastic, not only extending his business, but causing others, who have looked on askance, perhaps, to also embark in the fascinating pursuit. Thus our numbers are increased.

One of the greatest evils in connection with this part of the business, is the manner in which the small and uneducated bee-keeper places his crop before the public; not knowing or understanding its value, he offers it in unsaleable shape and transfers it to dealers whose knowledge of its value is so limited that they will not consent to pay more than two thirds the value, as well as feeling it a great hardship to have to accept it at any price. A change is, however, coming over matters, and instead of our being obliged to seek a market, we are being offered better prices now at wholesale than formerly we received from retailers, and are being eagerly sought after. Why this great change.

One of, and I, perhaps, might say the greatest reasons for this change, is the manner we have adopted and the system of exhibiting our tens of thousands of pounds of honey, all put up neatly and attractively and exhibited to an astonished and pleased multitude at the various exhibitions and fairs throughout the country. The people gaze in wonder at the vast mountains of honey, and this department becomes one of the greatest attractions of the show. Visitors purchase it largely, and extol highly the neat, and the admirable way in which it is presented to their vision. Would any person think of taking it to a fair, and competing for a prize, in milk-pans, buckets and bowls? Certainly not! Then why take it to market in any other than the very best shape? There the competition is even greater. It has not only to compete against other honey, but also every other imaginable mixture that man can devise, many of them unhealthy and poisonous, composed largely of glucose, and better calculated to sap the vigor and life from the human frame, and fill our cemeteries with premature graves, than to be one of the healthy luxuries of the table. If this vile stuff was not offered in a more attractive shape, would it take the place of our honey?

Are our bee-keepers going to slumber? Are they less intelligent? Can they not devise as attractive packages and as handsome labels? Can they not devise packages as suitable in size and as well adapted to the requirements of the retail trade? And can they not arrive at some plan of placing it on the counters and shelves of the retailer, so that it may appear to as good, or better, advantage than any other of his wares? And why not?

Those goods that please the eye and are presented in the most attractive manner, will move the most rapidly. Every pushing merchant desires that his place of business should outshine that of his neighbor, and that this end may be attained, the greater are his efforts to create a bright and attractive display. Let us then put our honey up in the sizes of packages and in the shape that is best adapted to the wants of the consumer, say in packages ranging from two ounces to five pounds, and in the following manner: Two ounces, four ounces, eight ounces, one pound, two-and-a-half pounds and five pounds. The smaller ones are purchased by children

in lieu of confectionery, and serve as an advertisement for the larger. A uniform size of case or parcel is also very desirable for shipping purposes. To this end, light, neat cases, of the size to hold a quantity of, say sixty pounds, can be introduced, and handled to advantage. Cases of sixty pounds would hold: 1 dozen, 5 lbs; 2 dozen, $2\frac{1}{2}$ lbs; 5 dozen, 1 lb; 10 dozen, $\frac{1}{2}$ lb, and like proportionate quantities of the smaller sizes. Should the trade demand it, these could be put up in half cases holding thirty pounds. Label the tins nicely with the nicest labels procurable, and wrap each separately to prevent chafing or injury in transit.

The wholesale merchant may now purchase as many cases or half cases as he may desire, and his travelers may carry samples of, and dispose of it in the same way that they do other canned goods. In this way many tons of honey are disposed of to dealers in out-of-the-way places that we would not otherwise reach.

Were this system carried out properly, honey enough could not be raised in America to supply the ever increasing demand, and we should find it, as we do other canned goods, in the camps of our soldiers, in our mining districts, in the new States and territories that are constantly being opened up and settled, in the new towns and villages along our newly-constructed railroads, and in thousands of other places in America where it could be sold with good profits to producer, middlemen and consumer. Surely we will soon learn to supply our own people with these necessities, in this country, and not allow the profit which rightly belongs to ourselves to be carried off by foreign speculators.

DISCUSSION.

Mr. Muth. In business a good exterior helps to sell the goods. Some years ago houses in New York and Chicago put up honey, or rather glucose mixed with honey, and labeled it beautifully. Five or six years ago every wholesale and retail store in Cincinnati we could find those beautiful jars with fine labels—New York and Chicago honey—and in the middle there was a little piece of comb, which made it more attractive. It took splendidly. But you can not go to Cincinnati to-day and find a single glass in that market any more. You can not go to Chicago and sell extracted honey for table use. In New York they can not be sold any more—even my honey can not be. All honey put up in glass jars is suspicious. We find in every city maple syrups, which are principally manufactured in New York and Chicago—it is glucose, and nothing else, with a little maple to give it a flavor. Above all things, keep a pure article, and you will make your point after awhile. In October, a year ago, I sold of one pound bottles between eight and ten thousand pounds a month. To-day it takes splendidly in Cincinnati. Everybody knows it, and it takes better every year. It is nice in exterior, but modest. A fine label may make it take splendidly. If pure honey is put up, even under these fine labels, it will take anyhow in a few years, because people are not swindled when they buy the article.

Mr. Buntain. I am sorry that Bro. Muth made this speech before the Governor came.

Dr. O'Rear. The Governor asked the question last year, and Mr. Muth answered him. I think he will not forget it.

Messrs. Cotton, Kennedy and O'Rear, and Mrs. Roberson and Mrs. Stout were appointed as delegates to the National Convention, at Toronto, Canada.

Convention adjourned to 1:30 P. M.

AFTERNOON SESSION.

Convention met at 1:30, President Cotton in the chair.

Secretary Daugherty was called upon to describe the mode of manufacturing foundation.

Mr. Daugherty. We make almost all of our foundation on the Givens Press, as we think it better than that made on the roll mills. It is hardly worth while here to tell of the many experiments we have made before arriving at a decision, only that the press leaves the wax in better condition to be worked by the bees, and the advantage of making foundation in the frames, pressed on wire, for we use no other kind now in our own yard, except for surplus honey. We melt the wax in double tanks. We use dipping boards of thin basswood. They are kept immersed in cold water while not in use. Lift the board from the water and plunge into the wax. The thickness of the sheet depends on the temperature of the wax. When right, two dips make the sheets just right, about six feet to the pound. In making foundation on wire, we now use two sheets where formerly we used but one. Place one sheet on the dies; place the wired frame on this; lay on the second sheet; close the die, pressing both into one, leaving the wire in the center, as you see these samples here, which to us seem almost perfect.

Mr. Johnson offered the following resolution in regard to holding the next National Convention at Indianapolis.

Resolved, That the delegates to the National Convention be instructed to invite the National Association to hold their next convention at Indianapolis.

Governor Porter being present, was called on to address the society, which he did. He complimented the society on its increased attendance each year and on the intelligent manner of its discussions. He referred to his former meeting with the society, and of the general information he had gained in his short stay. He was greatly interested in these industrial meetings of the several State societies, and believed that they should have all the encouragement possible, as they were destined to place our State in the very front rank of industrial States. He spoke of the great improvement in the several industries; thought the Legislature should make a small allowance for each society to enable it to send out reports of the proceedings of the meetings to all parts of the State, so as to place the knowledge of the specialist into the hands of those who are unable to attend the regular meetings.

Mr. Muth informally replied to the Governor, showing the growing demand for honey which was springing up—being now consumed in the manufacturing business. Among manufacturers using honey are the pork packers, for sugar-cured hams; tobacconists, bakers, confectioners, manufacturers of printers' rollers, etc.

I. N. Cotton, Dr. O'Rear, J. Kindey, Mrs. Robbins and Mrs. Stout were appointed delegates to the North American Association, with instructions to ask the society to come to Indianapolis next season.

Governor Porter. What is the average amount of honey in pounds in a given time?

Mr. Muth. Under favorable circumstances I have got as much as ninety-six pounds in twenty-six days.

Governor Porter. Take a series of years, how would it be?

Mr. Muth. When the nights are cool, below fifty-five degrees, there is not much honey-flow from clover. Last year I had a fine flow of locust honey, which came in May, and I obtained twenty pounds of honey of fine quality in six or seven days. If the nights keep cool in June we do not get much honey.

Governor Porter. Could you find any plant that would furnish this nectar below fifty-five degrees?

Mr. Muth. We have the sweet clover, but it is not generally planted; it is a fine clover, but not enough sowed to give us a large crop. If this sweet-scented clover would bloom as profusely as white clover, we would have plenty; it is well adapted to our climate.

Governor Porter. Is there an effort to find any plant below fifty-five degrees?

Mr. Muth. We have poplar, which yield abundantly most years; some years better than others. We also have the bass-wood, which yields splendid nectar; it blooms only six or seven days, and yields as much in that length of time as white clover will in a month. Our white clover blooms in June, and when the nights are cool the flow is cut off; the time is too short to make much, but when they are warm we always get honey from white clover.

Mr. Lemming. There is a plant called the field pansy which will produce nectar below fifty-five degrees. I have seen bees work on this plant on southern slopes when there was snow on the ground. It is a little stalk, about three feet high, with a purple blossom; we need to raise acres for bees.

Mr. Muth. We have Alsike clover, which is between red and white clover, and yields abundantly. We also have the mignonette, which is raised in the garden for the sake of the scent, which yields abundantly; also, raspberry and blackberry, and buckwheat is good; in some years it is better than others. Honey is used by the bakers in making honey-cakes; butchers use it in making honey-cured hams. It is also used by the tobacconist; it gives a fine flavor, since they know how to use it; it is the best sweet they have got.

Governor Porter. Is it used for anything else besides on the table and curing hams and beef?

Mr. Muth. I have sold 200 barrels to tobacconists, butchers, bakers, and for the manufacture of printers' rollers. It is used extensively by druggists. Our honey goes principally for manufacturing purposes. There is wonderful deception practiced in the honey business. Pure honey will granulate. We may take a little comb and pour glucose around it, and flavor it a little with clover honey, and it makes it appear pure. Just so with maple syrup; one gallon of maple syrup will make twenty-five or thirty gallons of syrup glucose.

Governor Porter. Can you heighten the flavor of honey by way of hives?

Mr. Muth. No; the color and taste is dependent on the kind of nectar; if from buckwheat, it will be dark; from white clover, it will be white.

Mr. Mason. I think it a mistake that every farmer should keep bees. In going around in my neighborhood, in a radius of four or five miles, I see bee-hives piled upon the shed or fence corner, with nothing in them. Bee-keeping has become a science, and must be followed in a scientific way if you make a success of it; it is as much so as farming, and if you want to make a success of it you must bring it to that point that you can not be a farmer and a bee-keeper at the same time. I would suggest that the Governor give us some assistance in the Legislature, and aid us in making this one of the finest associations in the State.

Resolved, That the thanks of this association be and are hereby tendered the hotels for reduced rates and accommodations; also, to the State Board of Agriculture, through and to the Secretary, for attention to our wants and needs.

The convention adjourned *sine die*.

INDIANA CANE GROWERS' ASSOCIATION.

The response to the call for a meeting of the cane growers of Indiana was most gratifying and encouraging. The convention was called for the purpose of ascertaining whether the cane growers of the State wished to make associated effort for their mutual improvement in the manufacture of the different products of the Northern cane, commonly called sorghum.

The meeting convened in the rooms of the State Board of Agriculture, in this city, on Wednesday, December 27, 1882. So utterly unacquainted with each other were the delegates that when they met they had to introduce themselves, and each ask the other his name and residence, and whether he brought samples of his work. However, this was no serious hindrance, for all seemed to have the happy faculty of getting acquainted, as well as resolving themselves into a tasting committee.

Upon consultation it was concluded to effect a temporary organization by calling E. J. Howland, of Marion county, to the chair, and appointing Dr. A. Furnas, of Hendricks county, as Secretary. As a means of introducing the work of the convention, it was proposed to take up the subject of the merits and demerits of

THE DIFFERENT PANS.

Isaac T. Gates, of Rush county, had placed on the table a very fine article of syrup and sugar, and he was called out to explain the kind of pan he used in its production. He said he had the Maulsby pan, without the return, which deprived the pan of its self-skimming qualities, and consequently after defecation he practiced hand-skimming. He liked his pan very well, but could not make such syrup as his specimen without the aid of bi-sulphite of lime. Peter Raab, of Marion county, said that he had the Maulsby pan complete, with return side-skimming attachment, and without this attachment, which makes a complete self-skimmer, it was not a Maulsby pan at all. He said, however, that instead of having his pan exactly level, as was directed by the inventor, he raised the front about one and a half inches, and thought the flow toward the battery or chimney the better for the change.

PROGRAMME OF BUSINESS.

At this stage of proceedings a committee was appointed to prepare business for the meeting, which soon reported the following:

Your Committee on Business would respectfully suggest that this convention take up the subject before it, beginning with the selection of seed, and then follow in the order of its development from selection of suitable ground on which to grow

them, preparation of ground, planting, cultivation, preparing for grinding, kind of mill, style of pan and process of defecation and evaporation, leaving the convention to choose its own time for permanent organization, and attend to such other matters as may come before it. This was agreed to, and the convention adjourned until 2 o'clock. During the dinner hour a number of other cane growers, with their specimens of syrup, sugar and seed, arrived, including Professor H. W. Wiley, of Purdue University, W. L. Anderson, of Ladoga. The attendance, with the specimens on the table, now assured at least a reasonable success of the meeting. Doctor Furnas displayed the collection of sugar and syrup, kindly furnished by the leading exhibitors of the Mississippi Valley Cane Growers' meeting, at St. Louis, and W. L. Anderson made a display in extent and quality that commanded the admiration of every one. W. T. Leitzman, of Center Valley, also placed some fine specimens on exhibition. Peter Raab had some fine syrup, and M. N. Satterthwaite had a fine article of syrup, treated with lemon juice, that was admired by all who tasted it, and by some pronounced the most palatable article on the table. Professor Wiley exhibited ten specimens of syrup from the Lafayette refinery, which were not so clear in color as some others, but in taste were pronounced very good indeed.

Upon reassembling at 2 o'clock, W. L. Anderson, P. Raab and L. A. Foote were appointed a committee to propose names of officers and plan for a permanent organization, and directed to report at the evening session.

The subject of

VARIETY OF SEED

was then taken up and discussed at some length. The conclusion of the whole matter was that Early Amber was the earliest, though not the most productive, yet desirable to afford an early beginning in manufacturing; and the Early Orange, some ten days or two weeks later, was the best for the principal crop. Dr. Brown said that the Northern cane must mature in comparatively warm weather, in order to develop the quality of crystallization. Hence, in our latitude an early variety was absolutely essential. To meet our wants and give the necessary time for manufacture, our cane should mature in 90 to 100 days. The doctor quoted his experiments made in 1863, showing the great susceptibility of improvement on the old and late variety of sorghum, by selecting the earliest ripening heads, and in a few seasons the late varieties could be changed to a much earlier one. This hint should be improved upon by all planters, and it is not improbable that a much earlier variety than the Early Amber may yet be produced.

In regard to

SUITABLE GROUND,

The experience of those present would indicate a lively light upland, known among farmers as sugar-tree land; though the cane will grow on all soils where corn or potatoes will succeed; yet, with our imperfect knowledge of defecation, we succeed in making the finest article on light, or even poor land. In the western prairies the finest molasses is made from cane grown on the fresh broken sod, and planted by chopping in with an axe, with no further cultivation, and the writer of this has observed that with us a fresh timothy sod with good cultivation has produced the

best results. Professor Wiley attributes the dark shade of the specimens he exhibited to the rich bottom lands of the Wabash on which the cane was grown; which is conceded to be correct. We, however, are confident that the day is not far distant when chemistry will enable us to completely eradicate every shade of this coloring as well as sorghum taste, in all mature juice, no matter whether grown on the high and light lands, or the rich soils of White river or the Wabash. Its possibilities are wonderful, and the probabilities equally so.

In regard to

PLANTING,

It was agreed that neither too soon nor too late seemed to produce the best results. If planted too soon the seed would germinate slowly, and the weeds would get the start of the small cane plants. The ground should gain sufficient warmth to hasten the growth—perhaps early corn-planting is soon enough. But the habit farmers have of leaving the cane-planting until everything else is done, and then, if there is an odd bit of time, somewhere along in June, plant the sorghum, was severely condemned, and cited as one of the many hindrances to successful cane cultivation. One of the most extensive cane growers of Edwardsville, Illinois, keeps the planting up with the breaking; every day's breaking is planted before night, thus giving the cane an even start with the weeds.

CULTIVATION.

The prominent feature in cane culture is to clean it early. If not sprouted and the weather not warm enough to hasten it through the ground, the weeds generally get the start of it, making the hoe absolutely necessary in cleaning the young plants. The verdict was against the use of the hoe, not on account of its want of efficiency when well directed in the hands of an active workman, but because hoeing is too much like work, and besides this, if possible, we must devise a more speedy method of culture. Some recommended drilling in rows, two or three times more seed than is necessary, and then cross-harrowing until thin enough. At the cane growers' meeting at St. Louis, Professor Culbertson, of Nebraska, said his method was to drill eight pounds of seed to the acre, and then cultivate with a common two-horse wheat drill across the rows as soon as the plants were fairly up, which at once put the ground in a good mellow condition, at the same time thinning as well as distributing the plants in the right proportion. After which a light harrow is used to further thin the plants and pulverize the soil, if thought necessary. Any plan to begin with, that will free the ground of weeds will be successful; then cultivate same as for corn.

The meeting adjourned until 8 o'clock P. M., at which time the

PERMANENT ORGANIZATION

Was perfected. The following brief constitution was agreed to:

Article 1st. This Society shall be known as the Indiana Cane Growers' Association.

Article 2d. The object of this association shall be the advancement and com-

pletion of every mode and means calculated to assist in the perfection of the manufacture of syrup and sugar from the northern cane.

Article 3d. Its officers shall consist of a President, Vice President, Secretary and Treasurer, who shall perform the usual duties pertaining to their respective offices.

Article 4th. The officers shall hold their respective positions for the term of one year, and until their successors are elected.

Article 5th. The annual meeting of this association will occur in the city of Indianapolis, and be held on the last Wednesday in December, and continued in session for two days.

Article 6th. Any one may become a member of this association by paying into the Treasury the sum of 50 cents.

Article 7th. The President, Vice President and Secretary shall constitute an Executive Committee, who shall audit all claims on the association, and attend to all matters requiring attention between meetings, and may call a meeting if thought proper.

Article 8th. This constitution may be amended by a majority of all the members in attendance at any annual meeting.

An election of officers was then held, which resulted as follows:

President—A. Furnas, Danville, Ind.

Vice President—W. L. Anderson, Ladoga, Ind.

Secretary—H. W. Wiley, Lafayette, Ind.

Treasurer—E. J. Howland, Indianapolis, Ind.

The subject then of

DEFECATING THE JUICE

Preparatory to evaporation was taken up, and from the interest manifested in this subject, it is obvious that upon this process much of the success of the manufacturer depends. During this discussion the Secretary was more of a teacher than recorder, and our report must be very imperfect. Considerable of this discussion, however, related to the manufacture of bi-sulphite of lime, as made by W. L. Anderson. At the request of the association, this gentleman agreed to furnish his process of manufacture for publication (and which follows these proceedings. This is certainly very generous on his part, as heretofore this process has been little understood outside of the chemist's laboratory. This gentleman gave a minute detail of his process of making and using the defecating material, and then exhibited his syrup and sugar, made by his treatment, which was a complete vindication of his plan in their superior excellence. There are yet many manufacturers of syrup from the Northern cane who boast that they make it "pure," without lime, or any other defecator. These, however, must soon learn that they will be left when it comes to selling their goods in competition with brands known to be completely defecated, and driving away all their sorghum taste, so objectionable to many. Another process of defecation was the sulphurous acid bath. This is simply bleaching by sulphur, the details of which are too lengthy for this place. Both these processes are inexpensive, and quite effective. Many of the members re-

marked that the information gained on this discussion had amply paid them for attending the convention.

On the last day of the meeting but one session was held, the business part of which was devoted mainly to the manufacture of sugar and syrup. This was the sum total of the whole convention. It is pretty well conceded on all hands that without a marked improvement on the first products of Northern cane, the attempt at making anything for table use should at once and forever be abandoned. In order to complete success, a few prominent points must be observed. First the juice must be thoroughly defecated. This is essential in order to remove the rank, objectionable "sorghum taste."

LIME AND SULPHUR

Seem to form the principal agents for this purpose. Lime corrects the acidity, always more or less present in the fresh juice, and sulphur improves the appearance, and also the taste of the article. The details of these processes are too lengthy for our purpose at this time. After defecation comes evaporation. Any method that will do this rapidly will generally succeed. Shallow pans are best fitted for this purpose, yet even this is a debatable point, for there are those that advocate deep pans. One thing, however, is pretty well established, and that is, the sooner it is reduced after beginning, the better. Intimately connected with evaporation is

THE SKIMMING.

For this purpose the number of devices is almost endless. While many differ in opinion in reference to the particular mode, yet all are agreed that as soon as possible the scum should be removed, and the more thoroughly this is done the more satisfactory the result. In large works drawing off the juice at some stage of evaporation, either immediately after leaving the defecator, or in semi-syrup, is practiced to allow it to settle. This is perhaps always at the expense of increasing the color, but with the advantage of adding to its purity, which of course is of prime importance.

Many of the small operators, and especially those that use automatic skimmers, dispense with the settling process entirely, and claim that they can defecate completely, and at the same time make a fairer article.

Quite a popular idea is now obtaining with a good many leading manufacturers in reference to covered pans—that is, a

FLOATING COVER

Over the part of the pan where the active boiling is going on and leaving a "dead sea," where ebullition does not take place—in which to collect the scum. It is argued by some that evaporation is more rapid thus under cover than if uncovered, for the reason that the lid retains the heat. Others claim that while it retains the heat it also retains the watery particles to some extent, by recondensation, and just that far defeats the very object of evaporation. In this process, however, it is generally admitted that the scum is driven successfully to the dead sea, where it is easily collected.

BURNING THE BAGASSE

In place of wood is another question for the syrup-maker to decide. To one who has been used to thinking that the best of wood was necessary in running the fire pan—the bagasse fuel looks preposterous indeed, and yet we can not get over the universal testimony in its favor by the large and respectable list of manufacturers who have tried it in the west.

A call was made for signers to the constitution immediately on its adoption, and the following subscribed thereto:

A. Furnas, Danville; W. L. Anderson, Ladoga; Chas. A. Porter, Flatrock; Robert W. Allen, Greencastle; Isaac T. Gates, Carthage; W. T. Leitzman, Center Valley; M. N. Satterthwaite, Columbus; Isaac Engle, Nottingham; L. B. Custer, Logansport; E. Tomlinson, Plainfield; John Harvey, Plainfield; E. J. Howland, Indianapolis; Peter Raab, Indianapolis; Peter Sawin, Edinburg; J. B. Hollingsworth, Indianapolis; W. H. Ragan, Clayton; John Lee, Crawfordsville; H. W. Wiley, Lafayette; J. A. Foote, Terre Haute.

The committee on samples divided them into two classes—those made by steam works, and those by fire train.

AWARD OF PREMIUMS.

Syrup made by steam coil, W. L. Anderson, first premium. Syrup from fire train, I. T. Gates, first premium. All the specimens on the table were very creditable and spoke well for their makers.

A vote of thanks was tendered the secretary of the State Board of Agriculture, Alex. Heron, for his untiring efforts in anticipating the wants of the convention, by heating and lighting the rooms and tendering them to the use of the cane growers gratuitously.

NOTE—The undersigned, acting as temporary secretary of the convention, had made brief notes of the proceedings understood only by himself, and when the permanent secretary was elected, he was most of the time teaching, and consequently little or nothing was noted of what he said, thus the notes were left in our hands to make the best we could of them and our poor memory—hence many valuable suggestions, no doubt, are omitted, because no note was taken of them at the time.

At our next meeting we will have a short-hand reporter, so the proceedings may be complete. Every cane grower in the State of Indiana is respectfully requested to send his name and address to the undersigned, so that we may know how to reach him with programme of next meeting. Friends, please see to this at once; it will add much to the success of our next meeting.

A. FURNAS, Secretary

DANVILLE, Indiana.

HOW TO MAKE BI-SULPHITE OF LIME.

BY W. L. ANDERSON, OF LADOGA.

At the Cane Growers' Convention in Indianapolis, December 27 and 28, 1882, I presented samples of syrup and sugar made by Anderson & Son, of Ladoga, Indiana.

Notwithstanding the premium molasses of the cane growers of the Mississippi Valley was on hand, I had three grades superior to it, so considered by the man presenting the premium molasses. It was also conceded by several sugar makers that my sample of sugar was equal to that of the noted Champaign sugar. The convention was anxious to know why we could produce a better article than others. I replied that it was due to bi-sulphite of lime, which led them to inquire how the chemical was manufactured. I promised them I would publish a full and minute description of the process. I now attempt to fulfil my promise:

HOW TO MAKE A RETORT.

Order some potter to make you a jug holding not less than three gallons; make it thick and glaze it heavily on the inside, else the acid will eat up the jug. Make the mouth not less than two inches in diameter. When you get the jug, get an iron kettle and build a furnace about it, so that the kettle will be stationary, and can be heated to the best advantage. Put the jug in the kettle and surround it with sand to its mouth; be sure to have plenty of sand under the jug, or it will burst.

HOW TO MAKE HYDRATE OF LIME.

Get a barrel, take the head out, put in a bushel of unslacked lime; slack it under water, then fill the barrel with water, stir up the lime well, till a strong milk of lime is made, then let it settle till the water is perfectly clear. This clear water is hydrate of lime. Now get another barrel, bore a two-inch hole in the head, tap the other barrel just above the settled lime and draw off the clear water and fill the second barrel. It will have a good effect if you add a gallon or two of milk of lime to the clear water.

HOW TO FILL THE JUG.

Get good charcoal, fill the jug half full of it, put in about the same amount of sulphuric acid.

HOW TO CONNECT THE JUG AND FILLED BARREL.

Get a copper pipe three-fourths of an inch in diameter, having two elbows, and long enough between the elbows to reach from the jug to the barrel. Place by the side of the furnace, one end just entering the jug, the other reaching nearly to the bottom of the barrel. Get a rubber stopper; fit it into the mouth of the jug; bore

a hole through its center just the size of the pipe; force the pipe through this till its end reaches the bottom of the stopper. Bore another hole in the barrel head; fit in a wooden stopper; bore a hole through it as through the rubber, slip it up the pipe almost the length of barrel. Now put in both stoppers and fire up.

HOW TO COOK IT.

Do not fire up too fast or you will burst the jug. While you are waiting for heat, get a stick somewhat longer than the barrel; fasten some rags on one end of it and thrust them through the first hole you bored, thus making a dash. This dash need not be used until you see the gas escaping through the hole in the form of smoke; then put rags over the hole so that the gas can not escape, wrapping them about the dash so that it will slide through it as you stir occasionally. Watch that no gas escapes at the rubber stopper. If it should, drive the stopper down as tight as the jug will bear, hang a weight on the pipe next the jug and put dough around the stopper.

As the gas is formed in the jug it will escape through the pipe and rise in the barrel in bubbles; this you will hear.

HOW TO TELL WHEN DONE.

From the time when you first hear this bubbling till it is done, will be six or eight hours. There is no test so good to the novice as that of smell. If you take your nose away as you would from a hartshorn bottle, you know it is done. Draw your fire, letting it blubber away till it almost ceases; then take away your pipe or it will suck back into the jug till it is full. Stop your barrel tight. One barrel will make about 1,000 gallons of molasses.

My advice to all who have not tried this chemical is, not to attempt to make it until you are satisfied you wish to use it permanently, but buy what you want for next year. It will cost you \$8 per barrel, but to accommodate all who may wish to test it next year, I will furnish it at \$5 per barrel.

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